

Evaluation of the Productivity Institute Programme: Evaluation Framework and Baseline Report

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Preface

This report sets out the findings of the first phase of an evaluation – commissioned by the UK Economic Social and Research Council (ESRC) – of the 2019 Productivity Institute Programme, comprising The Productivity Institute (TPI), the Programme on Innovation and Diffusion (POID) and the thematic investments. This policy report is likely to be of interest to research funders, policymakers and those working to tackle the UK’s well-recognised productivity challenge. The report may also be of interest to members of the public interested in productivity and research evaluation.

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Abbreviations

ABS	Annual Business Survey
BERD	Business Expenditure on Research & Development
BIEQ	Business impact evaluation question
BoE	Bank of England
BSD	Business Structure Database
CA	Contribution analysis
CBI	Confederation for British Industry
CEP	Centre for Economic Performance
CIPD	Chartered Institute of Personnel and Development
CPE	Centre for Productivity and Efficiency
EBRD	European Bank of Reconstruction and Development
EDI	Equality, diversity and inclusion
EQ	Evaluation question
ERC	Enterprise Research Centre
ESRC	Economic and Social Research Council
FCR	Field citation ratio
FOR	Field of research
FSB	Federation of Small Businesses
GCRF	Global Challenges Research Fund
GtR	Gateway to Research
GVA	Gross value added
HESA-BCI	Higher Education Statistics Agency Business and Community Interaction
HM Treasury	His Majesty's Treasury
IDBR	Inter-Departmental Business Register
ISCF	Industrial Strategy Challenge Fund

IMF	International Monetary Fund
IoD	Institute of Directors
ITT	Invitation to tender
KPI	Key performance indicators
LEP	Local enterprise partnership
LIPSIT	Local Institutions, Productivity, Sustainability and Inclusivity Trade-offs
LSE	London School of Economics and Political Science
MCA	Mayoral combined authority
MIDRI	Multi- and interdisciplinary research and innovation
MP-EE	Management practice and employee engagement
NPIF	National Productivity Investment Fund
OECD	Organisation for Economic Co-operation and Development
OGDs	Other government departments
ONS	Office for National Statistics
PEQ	Process evaluation question
PIEQ	Policy impact evaluation question
PIN	Productivity Insights Network
POID	Programme on Innovation and Diffusion
PIP	Productivity Institute Programme
PrOPEL Hub	Productivity Outcomes of workplace Practice, Engagement & Learning
PSRE	Public sector research establishment
R&D	Research and development
R&I	Research and innovation
RDA	Regional devolved authority
RIEQ	Research impact evaluation question
RPF	Regional Productivity Forum
SME	Small- and medium-sized enterprise
SIPF	Strength in Places Fund
SPF	Strategic Priorities Fund
SRS	Secure Research Service
ToC	Theory of Change

TPI	The Productivity Institute
UKRI	UK Research and Innovation
VfM	Value for Money
VFMQ	Value for Money Question
WoS	Web of Science
PPP	Public Private Partnerships

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Finally, we would also like to thank Professor Jonathan Grant, Marco Hafner and Gavin Wallis for providing helpful comments and suggestions in reviewing the report.

1. Executive summary

The Productivity Institute Programme (PIP) was established in 2019 by the Economic and Social Research Council (ESRC), through an investment of £40m from UKRI's Strategic Priorities Fund (SPF), to address the UK's productivity challenges. As the ESRC's largest single funding investment, the programme has set out the following primary objectives in the business case:¹

- **Drive a step-change improvement in the UK's productivity research and innovation (R&I)** by creating a sustainable, world-class programme capable of coordinating and leading an ambitious agenda to improve productivity in the UK.
- **Improve and sustain the systematic generation and use of evidence** to address the UK's productivity challenge and **effectively embed cutting-edge research within policymaking** across the UK's sectors and regions.
- **Develop practical interventions for improving productivity based on high-quality evidence** that will inform policymaking and organisational decision making across the UK.
- **Involve all relevant stakeholders**, especially those from un- and underrepresented places, groups and sectors.
- **Support the formation of a dynamic multi- and interdisciplinary community** working together on research and practical interventions to address the UK's productivity challenge.
- **Form enduring and sustainable structures to facilitate mutual engagement between researchers, policymakers and businesses** (ESRC 2019).

The PIP is implemented through three main investment streams: **The Productivity Institute (TPI)**, receiving £26m in funding to deliver a research hub to advance understanding of the UK's productivity challenge through a UK-wide network housed in the Alliance Manchester Business School; the **Programme on Innovation and Diffusion (POID)**, an investment of £4m based in the London School of Economics and Political Science (LSE), focused on producing cutting-edge research on how to enable the diffusion of innovative ideas and technologies across the UK's economy to boost productivity growth; and an investment of £11m in a set of **seven thematic investments** that have recently been awarded.

The aim of the evaluation is to understand the extent to which, and how, the PIP has fulfilled its objectives as listed above. The insights generated by this evaluation will inform ESRC's governance and management of the investment and will inform future research investment priorities and strategy relating to productivity

¹ It has also set the following secondary objectives: to increase the capability of social scientists working directly with business, and the capability of business and policy working with the research base.

and more widely. This report is the first deliverable of the evaluation, which sets out the evaluation framework and baseline assessment.

1.1. Evaluation framework

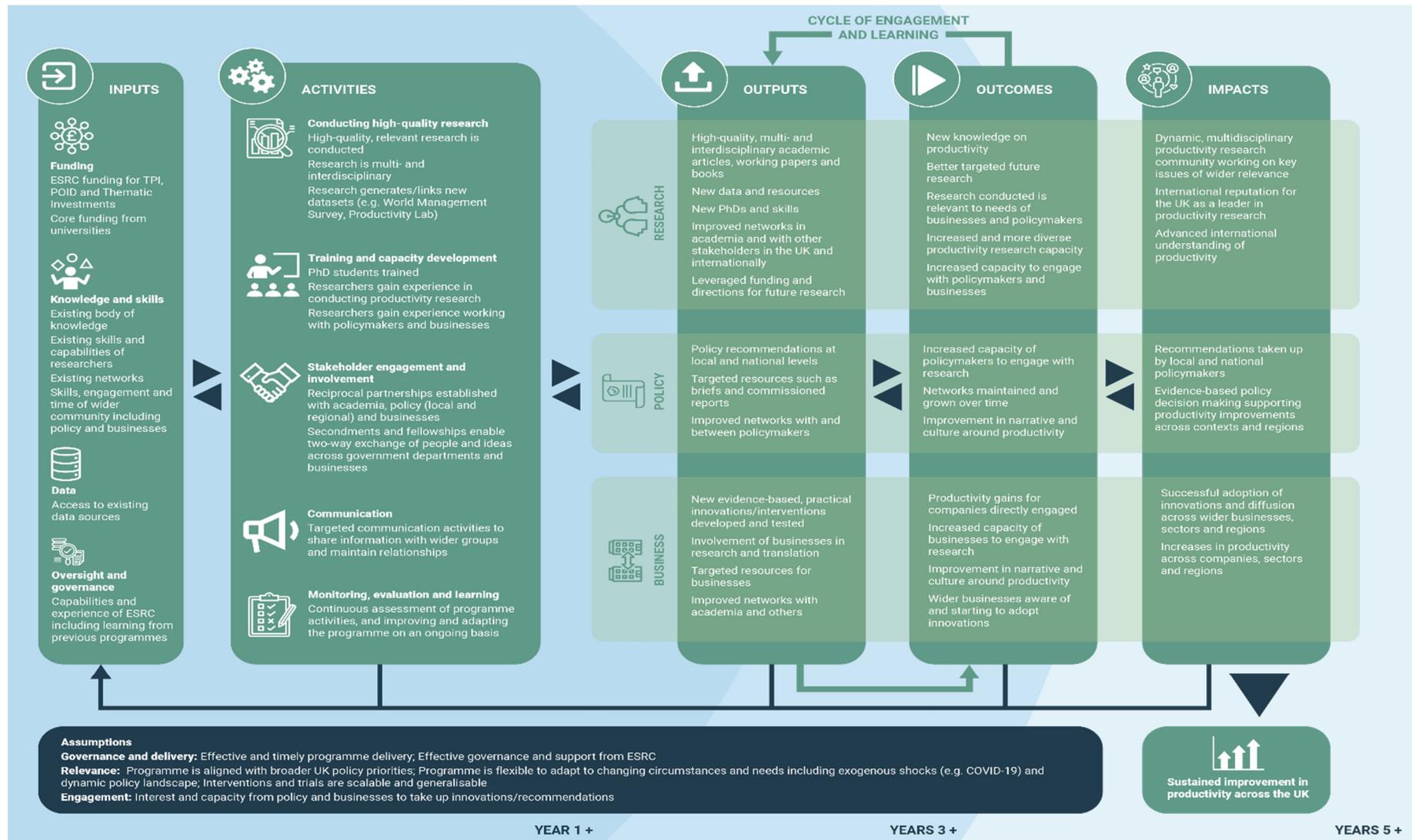
The purpose of the evaluation framework is to develop a detailed evaluation approach, including data collection and analysis methods, to provide the basis for robust impact and process evaluation to be conducted over subsequent stages of the evaluation. The framework was developed based on document and literature review, interviews and a workshop with ESRC, TPI and POID. The framework includes a Theory of Change (ToC), which is summarised as a logic model shown in Figure 1. Based on this ToC, and the questions provided in the invitation to tender (ITT), we have developed a refined set of evaluation questions (EQs), which are set out in questions below. First, we have a set of process EQs that investigate how the PIP is managed and delivered in a way that facilitates the achievement of its impacts. The impact EQs are structured around three impact areas identified in the ToC: research, policy and business. Below, we have set out how these questions are related to the programme’s primary objectives. For each EQ, we have identified indicators and methods that will be used to address them throughout the evaluation.

Table 1: Evaluation questions

Process evaluation questions (PEQs)	
PEQ1. To what extent, and how effectively, are the investments coordinated and together amount to a coherent programme?	
PEQ2. How has the design, commissioning and delivery of the PIP identified, addressed and engaged with the needs of policymakers, businesses, researchers and wider academic stakeholders, and workers and worker representatives, and what has this meant for ongoing programme design and delivery?	
PEQ3. How effectively has the PIP mobilised existing multi- and interdisciplinary knowledge and the wider UK and international research community?	
PEQ4. How well has the programme adjusted and adapted appropriately to a changing landscape (e.g. COVID-19, net-zero transition)?	
PEQ5. How have ESRC, TPI, POID and thematic investment management and governance systems supported and enabled the timely delivery of research, engagement and training activities?	
PEQ6. How has the programme used monitoring, evaluation and learning to drive continuous improvements in planning and delivery?	
PEQ7. How effectively has the programme built skills and capacity across different stakeholder groups?	
PEQ8. To what extent has the programme demonstrated a commitment to equality, diversity and inclusion (EDI), environmental sustainability, and good people management practices, across its approach to achieving business, policy and academic impact?	
Research impact evaluation questions (RIEQs)	Programme objectives
RIEQ1. To what extent has the programme delivered a step change in the quality, international recognition and multidisciplinary of UK productivity research?	<ul style="list-style-type: none"> To create a step-change improvement in productivity research and innovation in the UK by establishing sustainable world-leading structures and capabilities delivering a coordinated and comprehensive programme of work directly addressing the challenge of improving UK productivity. To form an interdisciplinary community taking a coordinated, interdisciplinary
RIEQ2. Has the PIP advanced the evidence base relating to UK and regional productivity, particularly in relation to finding practical solutions to the UK’s productivity challenge?	
RIEQ3. How are productivity-related interventions and innovations developed by the PIP perceived by and useful to policymakers, businesses, researchers and wider academic stakeholders, and workers and worker representatives,	

<p>considering, for example, their practicality, novelty, risk and suitability for development and/or investment?</p> <p>RIEQ4. To what extent has the PIP linked up effectively with wider research and innovation priorities and opportunities?</p> <p>RIEQ5. What has been the impact of the PIP on academic capacities and capabilities for productivity research? How enduring are these improvements?</p>	<p>approach to productivity research and policy addressing long-term productivity challenges.</p>
<p>Policy impact evaluation questions (PIEQs)</p>	<p>Programme objectives</p>
<p>PIEQ1. To what extent has the programme delivered high-quality, relevant and actionable policy recommendations and solutions around productivity?</p> <p>PIEQ2. Has the PIP had an enduring impact on how productivity is understood and integrated into practice by policymakers?</p> <p>PIEQ3. To what extent and how has the PIP had an enduring impact on the capacity and capability of policymakers to engage with productivity research? And conversely, how has the PIP impacted researchers' capacity to produce policy-relevant research?</p> <p>PIEQ4. What impact has the programme had on policy across UK government departments, devolved nations and local regions, and the international policy community? How sustainable are these impacts?</p>	<ul style="list-style-type: none"> • To improve the systematic and sustained generation and use of evidence and the capability to embed research within policy and practice across regions and sectors to improve UK productivity. • To develop solutions and interventions for improving productivity based on high-quality evidence that can inform policy and be embedded within organisations.
<p>Business impact evaluation questions (BIEQs)</p>	<p>Programme objectives</p>
<p>BIEQ1. How has the PIP created new structures and opportunities for productivity researchers to increase engagement with businesses and other industry stakeholders, and how enduring are these?</p> <p>BIEQ2. Has the PIP identified new and feasible interventions that business leaders or industry bodies could take to improve productivity?</p> <p>BIEQ3. Has the PIP had an enduring impact on how productivity is understood by business leaders?</p> <p>BIEQ4. To what extent has the PIP led to changes in business practices and decisions (e.g. investment in technology, workforce training, etc.), and what has the effect of these changes been on productivity?</p> <p>BIEQ5. What impact has the programme had on business across the UK, including devolved nations and local regions?</p>	<ul style="list-style-type: none"> • To forge mutual, lasting engagement between the UK productivity-related research community and policymakers, practitioners and business. • To involve un- and underexplored sectors, places and groups, including addressing strong spatial dimensions and understanding the long tail, challenges and successes of larger businesses and those at the productivity frontier.

Figure 1: Logic model summary of the PIP ToC



1.2. Baseline assessment

The aim of the baselining task is to set out the baseline picture for the impact evaluation across knowledge, policy and business activity in relation to productivity prior to the launch of the PIP. The purpose of providing this baseline is to give a comparison point for our later analysis of the impact of the PIP. We established the baseline in two ways: quantitatively, collecting baseline (and pre-baseline) measures for indicators developed where feasible; and qualitatively, exploring the nature and extent of productivity research and related knowledge across different stakeholder groups. Our key observations regarding the baseline in the three impact areas are set out below. Note that the process evaluation topics are not captured here and are not relevant for baselining (at baseline, by definition, no processes were in place as the programme had not yet been created).

1.2.1. Research

High-quality research on productivity was being conducted, but the field was fragmented and multidisciplinary was limited. At baseline, the field of productivity research in the UK was widely perceived as being of a high quality and international renown. This is reinforced by our analysis of baseline productivity research publications,² which received on average seven times the world average level of citation, and 21.5 per cent of the publications were in the top 5 per cent of most highly cited articles for their field. There was evidence of growth in the volume of productivity research being conducted in the UK prior to 2019, and some key, internationally renowned researchers in the field were based in the UK. However, perceptions were that the extent of multi- and interdisciplinarity in the field was limited, with the topic typically perceived as an economic problem and the majority of UK research being conducted by economists and a few other related disciplines such as economic geography. Analysis of baseline publications supports this perception to some extent as only 18.9 per cent of publications were associated with more than one field of researchers, and most researchers reported economics as their ‘home discipline’ in which they most frequently publish. However, we also see researchers drawing on a wider range of disciplines (on average around five different fields) in the sources they reference and similarly being cited across a range of different disciplines. There was also evidence of fragmentation in the field and limited communication across groups, in part because productivity was not the core focus of research for many even in economics. Prior efforts had been made to promote collaboration and interdisciplinarity, notably the ESRC’s Productivity Insights Network (PIN), but nothing like the scale of the PIP.

Much academic research was not written with practical policy implication in mind, but rather fellow academics. There were some notable exceptions to this trend, as policy-minded researchers would often produce academic work with accompanying policy briefs. We find that 14.9 per cent of publications were cited by policy documents – slightly higher (19.4 per cent) for researchers subsequently involved with POID. This is slightly higher than the ESRC average for that period (12.6 per cent) but higher than for a comparator set of productivity-related awards (26.4 per cent).³

The nature of the problem was well understood but broader system-level perspectives were lacking. The nature of the UK’s productivity challenge was well understood at baseline, and the longer-term drivers of the UK’s flatlining productivity were also well-established. What was less well understood was the relative importance and interaction of these drivers. Regional dimensions of productivity were also underexplored.

² Baseline publications are defined as a set of 1,457 publications from the period 2014–2018 authored by at least one of a group of 95 researchers subsequently supported by the PIP (either TPI or POID).

³ Citations in policy documents based on Dimensions data that link publications to a set of indexed policy documents.

Generating and linking productivity-relevant data was a significant challenge at baseline. In particular, it was difficult to access high-quality administrative data and geocoded data, an issue exacerbated by the lack of a centralised system for data management in the UK (which is present in many European countries). Measurement challenges were also present, in part reflecting the UK's service-based economy, which produces more intangible inputs and outcomes that make measurement of productivity more difficult.

1.2.2. Policy

In the immediate period following the financial crisis, productivity did not receive individual emphasis in UK government policymaking. Policymakers were preoccupied with the crisis response and then deficit reduction, so productivity was not a primary concern. However, this changed from 2015 onwards, where productivity was increasingly seen as important and cited in policy documents.

At baseline, policymakers' and civil servants' engagement with academic productivity research was mixed and policy implementation was limited. Certain academics and subfields of study were influential, but reliant on a handful of interested individuals and systematic engagement did not take place. As set out above, around one in six baseline publications were cited in a policy document, and of those documents cited, the average number of citations received in policy documents was 3.85 – higher than both ESRC average (2.21) and a comparator group of awards (2.94) over the same period. Low levels of policy engagement with research can be attributed in part to a lack of political will, with policymakers reluctant to discuss measures around the broader political economy and globalisation that could make a material difference to productivity. Equally, levels of effort made by academics to communicate with a policy audience were also mixed. Similarly, policies around improving the 'long tail' of firms had not been introduced at baseline.

A lack of coordination between government departments has often been a significant challenge to implementing effective productivity policy. Government departments were seen to be working in silos, and potentially useful collaborations around productivity were missed because of this. Several barriers to cross-department collaboration existed, including cultural and narrative issues and a lack of correct incentives.

Frequent changes in industrial and productivity policy have been commonplace and deleterious to long-term productivity growth. The overhaul of the 2017 Industrial Strategy in 2021 was not exceptional, but typical of post-war UK policymaking. Changes of this type create uncertainty for businesses and undermine long-term productivity growth. The same is true for regional policy around productivity, which has faced significant policy 'churn'.

1.2.3. Business

Individual businesses typically thought in terms of the bottom line rather than directly about productivity. Although business leaders would likely be able to define productivity at a high level, they may not have the capacity or incentive to measure productivity in their business, particularly for services businesses. Even if this could be achieved, many may not see the value in this, or how productivity is related to 'bottom line' measures of profit and revenue in which they are most interested. In addition, there is suggestion of a 'language barrier' between businesses and economists in the way productivity is conceptualised and discussed. Overall, the typical business was not necessarily thinking about productivity directly, or at the very least may be thinking about it in a different way to economists and policymakers.

Individual businesses often did not engage with policymakers or academics. Interviewees suggested that the individual businesses generally do not engage with productivity research or with policymakers on the topic of productivity. Businesses were unlikely to be research partners on projects – for example, only 1.2 per cent of baseline publications include an industry co-author (though this is similar to ESRC average (1.0

per cent) and a comparator group (1.1 per cent) over that period). There were some initiatives intending to provide more formal structures for engagement between academia and businesses, such as the National Centre for University and Business Collaboration and Be The Business. However, where engagement did occur it did not typically take place in regular, systematic, formal settings, rather at an individual level within specific programmes or projects on a one-to-one basis.

Business representative bodies are engaged with the topic of productivity and with policy more generally, and the themes of their work appear to overlap with that of policymakers and academia.

Although individual businesses do not typically engage with academia or policy, there is evidence of business representative bodies (such as Confederation for British Industry (CBI)) engaging with productivity issues in alignment with academic research. This suggests that at baseline, where business engagement with productivity research and productivity policy occurred, this may typically have been done via representative organisations.

2. Introduction

2.1. UK productivity

The UK's productivity challenge is 'an issue of pressing public policy concern' (Haldane 2018, 2) Since 2008, the UK has suffered a systematic and sustained flatlining of its productivity growth across all measures, as defined below (ONS 2022b). This gap between the UK's expected pre-crisis trend and its actual productivity growth constitutes the UK's 'productivity puzzle'. The box below shows the evolution of output per hour in the UK from the first quarter of 1997 through to the fourth quarter of 2019 (ONS 2022a). As shown in this figure, following the 2008 financial crisis productivity has been consistently below its pre-crisis trend. There was a sharp fall in productivity growth in the immediate aftermath of the crisis, and there has not been a noticeable 'bounce back'.

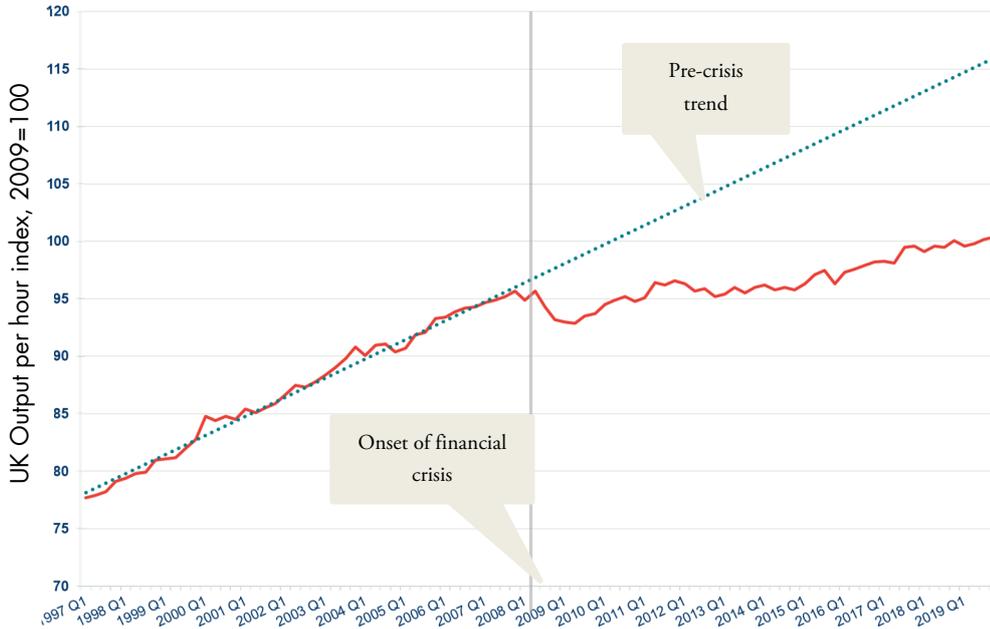
Defining and measuring productivity:

In this report, productivity is defined in simple terms as a measure of how much output is generated per unit of input. The Office for National Statistics (ONS) routinely produces three measures of productivity:

- Labour productivity
- Multi-factor productivity
- Public service productivity.

In this section of our report, we use labour productivity, defined as output produced per unit of labour input, because this is the measure used most often and most frequently available at subnational level (for specific industries or regions). Depending on data availability and specific objectives of the analysis, labour productivity is calculated using different measures of output and input. The output measure used in labour productivity can be gross value added (GVA) or total output. Input can be measured as number of jobs, workers or hours worked.

Figure 2: Index of UK output per hour, 1997 Q1–2019 Q4

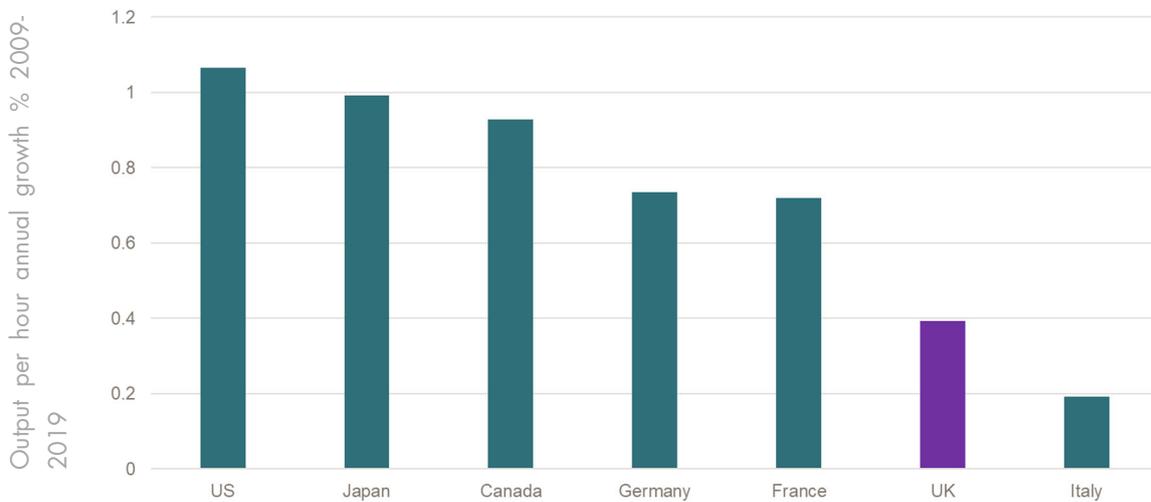


Source: ONS Labour Productivity Key Measures, published 2021 Q3

The slowdown in productivity growth experienced since 2008 is by no means unique to the UK. In fact, most advanced economies in the global north have undergone a similar stagnation since 2008 (ONS 2022b). However, what marks out the UK’s productivity puzzle as different to that of its peers is the scale of the slowdown.

Figure 3 shows the average annual growth rate in output per hour for G7 countries from 2009 through to 2019.

Figure 3: Average annual growth in output per hour for G7 countries, 2009–2019

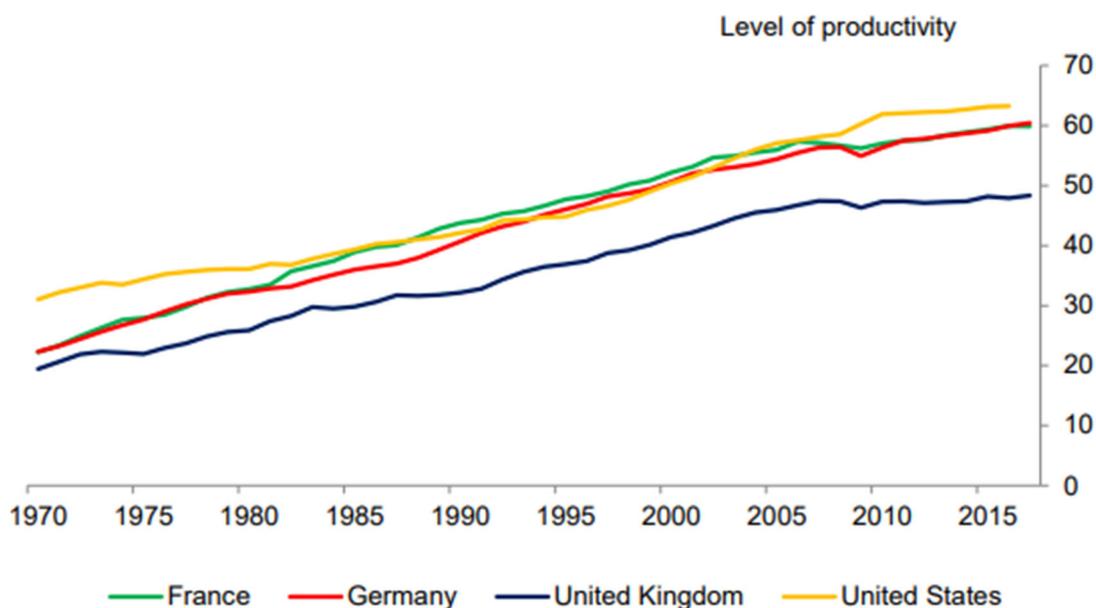


Source: ONS/OECD

Historically, UK productivity levels have also been below those of some international comparators. Figure 4 shows that the UK level of output per hour has remained below that of the United States, France and Germany consistently over time. Taken alongside

Figure 3, this would suggest that the existing gap between these countries has been increasing over time.

Figure 4: Productivity in the UK, United States, Germany and France



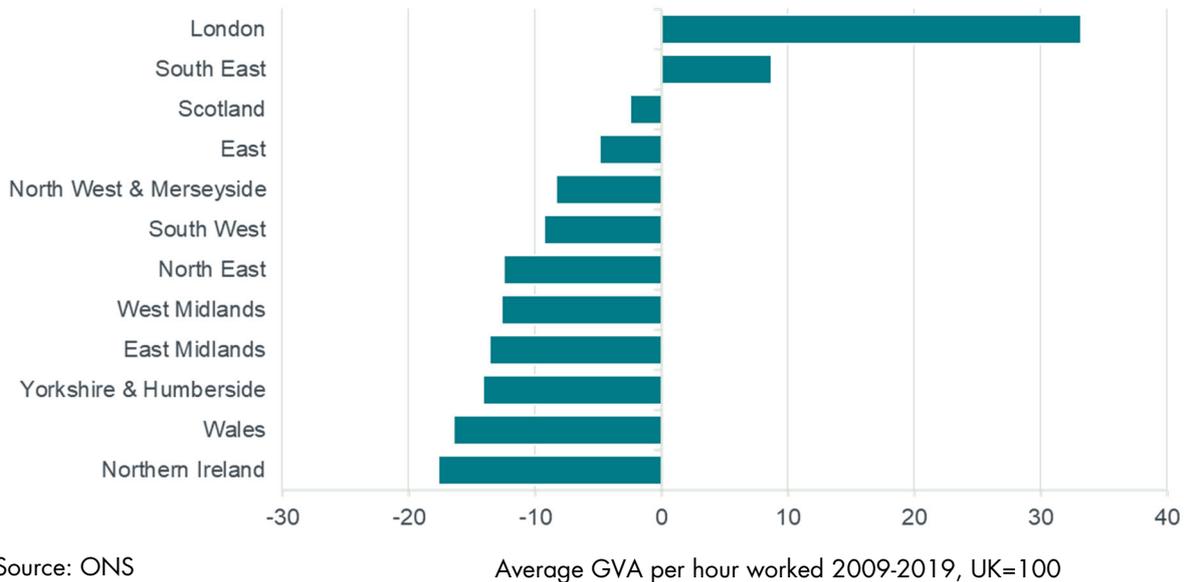
Source: OECD and Bank of England calculations

Note: Productivity is output per hour worked in US\$ at constant prices, using 2010 PPPs

The UK is also exceptional in its strikingly unequal regional distribution of productivity (McCann 2020, 6; Haldane 2018). In fact, when comparing local areas across the UK, productivity differences today are as great as those that exist between different members of the Eurozone (McCann 2018a, 12) and without precedent for a high-income country of the UK's size (Zymek & Jones 2020, 12). Figure 5 shows how GVA per hour compares across each of the regions in the UK. GVA is a common measure of economic productivity consisting of 'the value that producers have added to the goods and services they have bought' (Central Statistics Office 2023). The UK as a whole is indexed at 100, and Figure 5 chart shows the average deviation from 100 for each of the regions and devolved nations from 2009 to 2019. As can be seen, London and the South East have GVA per hour levels that are above the UK average. In particular, the GVA per hour in London is much higher than other UK regions and devolved nations. The UK government's 2022 Levelling Up White Paper notes that although it is true that London and the South East are the only regions above the national average, the picture within regions is also somewhat more complex. For example, London and South East also contain some of the least productive local authorities in the UK. Addressing regional

and place disparities in productivity and other areas is the key focus of the levelling up strategy (HM Government 2022).

Figure 5: Regional disparities in GVA per hour



Following a flatlining of the UK’s productivity since the 2008 Global Financial Crisis, productivity has become an increasingly important issue among policy makers. Indeed, while the implications of the COVID-19 pandemic for the UK’s productivity are still not clear (ONS 2022b), understanding the causes of the UK’s productivity puzzle and formulating solutions to address it has become an even more salient priority for the government as seen in HM Treasury’s recent policy paper ‘Build Back Better: our plan for growth’ (HM Treasury 2021).

The UK’s slowdown in productivity is of concern to policymakers due to the fact that productivity is a direct contributor to long-term economic growth. It measures how effectively inputs are used in the production process, and an increase in productivity means that the economy can grow without the need for additional inputs. Therefore, a slowdown in productivity, as observed in the data, is concerning in terms of its potential implications for economic prosperity and societal well-being.

In particular, a slowdown in multi- or total factor productivity growth is of concern because these measures capture not only the efficiency with which individual inputs are used in the production process, but also the efficiency with which they are combined.

2.2. ESRC’s productivity institute programme

In response to the UK’s productivity challenge, in 2019 ESRC secured £40m from the SPF, which is funded through the government’s National Productivity Investment Fund (NPIF), to create a new programme to understand and address the UK’s productivity challenge. This new investment, the PIP, is the single largest

investment ever made by the ESRC (ESRC 2022). Launched in September 2020 with an initial duration of five years, the programme has the following objectives:

- To **drive a step-change improvement in the UK's productivity research and innovation** by creating a sustainable, world-class programme capable of coordinating and leading an ambitious agenda to improve productivity in the UK.
- To **improve and sustain the systematic generation and use of evidence** to address the UK's productivity challenge and **effectively embed cutting-edge research within policymaking** across the UK's sectors and regions.
- To **develop practical interventions for improving productivity based on high-quality evidence** that will inform policymaking and organisational decision making across the UK.
- To **involve all relevant stakeholders**, especially those from un- and underrepresented places, groups and sectors.
- To **support the formation of a dynamic multi- and interdisciplinary community** working together on research and practical interventions to address the UK's productivity challenge.
- To **form enduring and sustainable structures to facilitate mutual engagement between researchers, policymakers and businesses**.

Originally envisaged as a single institute, the PIP consists of three separate investment streams: TPI, POID, and a series of thematic research initiatives. Together, through their different thematic focuses and streams of work, TPI, POID and the thematic investments are the vehicles for achieving the PIP's key objectives.

TPI is the largest single component of the PIP with an investment of £32m. The research programme is UK-wide and housed in the Alliance Manchester Business School, from where it aims to act as a research hub to advance understanding of the UK's productivity challenge. As a strategically focused investment, TPI aims to work with stakeholders from both the public and private sector to build the UK's long-term research capacity to produce world-class productivity research. To facilitate this engagement and produce practical interventions that are not just relevant to businesses and policymakers, but also responsive to the UK's regional challenges and opportunities, the programme has set up eight Regional Productivity Forums (RPFs) and a Productivity Commission. The RPFs are run in collaboration with TPI's ten academic partners from across the UK's regions, who together cover a range of research themes. Key research themes covered by TPI are Human Capital, Knowledge Capital, Organisational Capital, Institutions & Governance, Macroeconomic trends & policy, Measurement & methods, Geography & Place, Transitions, and Productivity Studies. The Productivity Commission provides a focal point for policy development at the national level, and local policy issues are addressed via the RPFs. TPI has also signed a memorandum of understanding with Be The Business, a dedicated business support charity, to engage with small- and medium-sized enterprises (SMEs). As such, the programme will work with key stakeholders to lay the foundations for a new era of sustained and inclusive productivity growth. The programme is jointly funded by the ESRC and the Alliance Manchester Business School (BEIS 2022).

POID is a £5m programme based at the LSE and focuses on producing cutting-edge research on how to enable the diffusion of innovative ideas and technologies across the UK's economy so as to boost

productivity growth (LSE 2022). The programme works with stakeholders across academia, government and the private sector to understand and develop policies to facilitate the diffusion of innovation across the economy for the betterment of society. POID also aims to create and facilitate access to high-quality data to improve the collective understanding of productivity in the UK, thereby strengthening businesses' and policymakers' evidence base for producing practical interventions to improve the UK's productivity. The programme is jointly funded by the ESRC and the LSE (LSE 2022). The key focus of the programme is on boosting productivity through nurturing innovation. Correspondingly, the themes covered by their research include industrial and innovation policy, wages and firms, healthcare and the economy, finance and innovation, power in the firm, and green growth and directed technical change. They have a strong focus on policy engagement and their Advisory Committee comprises key stakeholders across policy, academia and business.

Finally, a series of seven **thematic research projects** have been commissioned in 2022–2023, each with an investment of around £2m. These are focused on:

- Productivity, Wages and the Labour Market, led by the Institute for Fiscal Studies (IFS).
- Diversity and UK Firm Performance, led by University College London (UCL).
- Diversity and Productivity: from Education to Work (DaPEW), led by the London School of Economics (LSE).
- Understanding how constraints on access to finance and underinvestment impact on productivity growth in smaller firms, led by Oxford Brookes University.
- Understanding how servitisation can impact UK economic productivity and environmental performance, led by Aston University.
- Productive and Inclusive Net Zero (PRINZ): opportunities and barriers in the transition to sustainable and equitable growth, led by Imperial College London.
- Mental health and well-being practices, outcomes and productivity: a causal analysis, led by University of Warwick.

They will run alongside the other investments for its final three years and will produce research on several important productivity-related themes that are not covered by TPI and POID.

2.3. Novelty of the PIP

It is important to understand that this is not the first attempt to tackle the UK's productivity challenge through research. The ESRC's productivity-related research portfolio from 2004 to 2018 has seen investment in the region of £63m (ESRC 2018b, 1), and other research councils have also made a significant investment in topics related to productivity. Equally, however, it must be noted that the PIP was created in response to the limitations of this research, particularly around the lack of policymaker engagement and the need for high-quality research at scale. Indeed, the programme represents the single largest investment that the ESRC has ever made in any single topic and, as such, operates at a significantly larger scale than its predecessors. For example, the entire Local Institutions, Productivity, Sustainability and

Inclusivity Trade-offs (LIPSIT) programme at the University of Surrey is broadly analogous to the Institutions & Governance theme of TPI, and there are nine themes at TPI alone (TPI). Concentrating funding in this way should allow for research with greater depth, focused and sustained engagement with businesses at a local level (through the RPFs, for example), and can also allow formal channels for policy engagement, such as the Productivity Commission, to be established.

Among recent efforts, the PIN is perhaps the most direct predecessor to the PIP, specifically TPI. Both span universities across the UK, have followed a thematic approach with co-investigators acting as ‘theme leads’ and aim to promote interdisciplinary productivity research at institutions across the UK. Similarly, both have identified narrative issues around productivity as paramount. However, unsurprisingly given the significant scale of funding, the PIP has a more targeted approach to policy and business engagement, creating a dedicated policy arm, the Productivity Commission, which aims to act as a focal point for Whitehall initiatives, and fellowships for researchers to work within and alongside business and policy organisations. Finally, PIP has more scope to have an impact on regional businesses than PIN as they work with individual businesses and business leaders across the UK within the RPFs. From our review of previous investments and consultation with productivity researchers, regular, formalised structures for businesses to engage with primary research were uncommon, such as the RPFs, and that they represent something of a departure. For example, while other investments have targeted business stakeholders, such as LIPSIT (Gateway to Research 2023b) they have generally taken an indirect, ad hoc approach to engagement with business that is limited to occasional networking events or holding business-relevant seminars and workshops (PrOPEL Hub 2022).

Other approaches have involved focused work at one academic institution, rather than a network of research centres across the UK. Selected examples of this are the Centre for Productivity and Performance at Loughborough University and the Centre for Productivity and Efficiency (CPE) at Lancaster University. The CPE has held events with policymakers and businesspeople, as the PIP intends to do, but has not done so in a systematic and structured way. For example, perhaps for reasons of resource, there is nothing like the Productivity Commission at CPE. The same can be said of the two programmes’ approaches to business engagement. Similarly, for questions of resource, regional disparities are not a main focus of the CPE, which is instead covered within the Department of Entrepreneurship and Strategy at Lancaster University, but is clearly a target for the PIP.

2.4. Aims of the evaluation

The aim of the evaluation is to assess the impact of the programme on: 1) improving understanding of the productivity challenge in the UK; and 2) developing policy and practical innovations to address it. In this respect, the evaluation seeks not only to assess these impacts (or the lack thereof), but also to understand how, and through which processes, they came about. The insights generated by this evaluation will inform ESRC’s governance and management of the investment and will inform future research investment priorities and strategy relating to productivity and more widely. The evaluation will also inform the ongoing delivery of the programme as insights will be delivered in an iterative fashion.

Alongside this evaluation, there is the broader SPF evaluation under which the PIP sits. We will feed into this as one of the SPF's investments, but our primary focus is on the evaluation of the PIP.

2.5. Study approach

Underpinning the evaluation is the contribution analysis (CA) approach. CA is a useful tool in evaluations of programmes where final impacts are likely to be overdetermined (any future improvements in UK productivity will not be caused by the programme alone) and strict experimental evidence is lacking. In these contexts, CA seeks to explore attribution by assessing the contribution of the programme to observed results and outcomes, and develops pathways through which ultimate impacts can be plausibly achieved (or not) following on from these initial results. As is the case for most R&I programmes, ultimate impacts can take some time to emerge and CA offers a means to capture progress towards them at a relatively early stage. CA is also sufficiently flexible to capture unintended outcomes; as and when alternative impacts become apparent, we will test and refine different pathways with programme stakeholders to understand how they have come about.

2.6. Structure of the report

The evaluation is structured across five phases (detailed further in Section 4.4). This report is the first deliverable from the first phase of the evaluation, which sets out the evaluation framework and baseline assessment. The approaches used to develop these is as follows.

2.6.1. Evaluation framework: aims and approach

The purpose of this evaluation framework is to develop a detailed evaluation approach, including data collection and analysis methods, in order to provide the basis for robust impact and process evaluation to be conducted over the subsequent stages. Below, we outline the key activities undertaken by the evaluation team that have informed the development of this evaluation framework report:

- **Kick-off meeting:** On the 1 October 2021, the RAND and Frontier evaluation team hosted evaluation kick-off meetings with the core team at ESRC and with representatives from TPI and POID. The kick-off meeting was used to confirm the objectives, scope and expected outcomes of the evaluation, the plan and timescale for implementation (i.e. the four evaluation phases), the processes for sharing relevant documentation and for approving key deliverables, and the expected communication channels between key evaluation stakeholders.
- **Document review:** The evaluation team conducted a review of key documentation from the PIP as provided by UKRI. Documents reviewed included business cases for the programme, project proposals, dissemination and engagement plans, initial drafts of the PIP logic model, project initiation documents, and TPI's first annual report. Review of these reports focused on understanding the core inputs objectives of the programme to build a programme-wide ToC.
- **Literature review:** To inform the development of the evaluation framework, the evaluation team undertook a review of literature on evaluations and assessments of comparable international

programmes and previous ESRC investments. We examined the challenges faced by evaluations of other investments, and what indicators, metrics and methodologies were used. This helped to build the programme's ToC as well as our evaluation approach in general.

- **Interviews:** To refine the ToC, we completed a programme of interviews with fifteen stakeholders key to the delivery of the programme across ESRC, TPI and POID. Interviews covered the background, context and key objectives of the PIP before discussing the intervention logic (i.e. how inputs and activities of the PIP are expected to lead to outputs, outcomes and ultimate impacts). These interviews allowed us to cover gaps in the internal documents and to probe into more detail about what the programme aims to achieve in practice.
- **External ToC workshop:** On 18 January 2021, the evaluation team hosted a ToC workshop with key stakeholders from ESRC, TPI and POID. The aim of this workshop was to discuss refinements to the PIP ToC with a view to producing a revised version that, in turn, could be used to inform the development of the evaluation framework. The ToC workshop was structured around consideration of a draft 'strawman ToC' developed by the evaluation team in advance of the workshop. Insights from the workshop were then used to refine the draft ToC, with a new draft subsequently shared with ESRC and the investments for further feedback. The output of this process of iterative refinement is presented in the form of the finalised PIP ToC presented in Chapter 3.

2.6.2. Baseline: aims and approach

This first phase of research also involves understanding the baseline situation regarding productivity research and its impacts on policy and business at the programme's inception. This allows us to compare the landscape in subsequent stages of the evaluation to that at the outset, enabling an assessment of the impact of the programme. As such, it provides a useful comparison point for programme performance. We established the baseline in two ways: quantitatively, collecting baseline (and pre-baseline) measures for indicators developed where feasible; and qualitatively, exploring the nature and extent of productivity research and related knowledge across different stakeholder groups. The detailed baseline methodologies are outlined below:

- **Interviews:** We completed a further programme of interviews with a wide group of stakeholders across academia, government, business and trade unions to understand their views on productivity research, policy and business practice. The interviews closely followed the structure of the evaluation framework so as to provide relevant data to the EQs.
- **Targeted review of academic and grey literature:** We conducted a targeted review of literature on three main topics: 1) the status of UK and international productivity research prior to PIP; 2) productivity policy thinking in the UK prior to PIP; and 3) business understanding of productivity prior to PIP.
- **Review of internal ESRC documentation:** We reviewed a range of ESRC documentation on the rationale for the programme, understanding the gaps in knowledge around productivity and the motivation for and context within which the programme was established.

- **Bibliometric analysis:** We conducted a bibliometric analysis of the publications of individuals funded through POID and TPI over the period 2014–2018 (i.e. over the five years prior to the investment). This provides a baseline assessment across a range of aspects including research outputs, multi- and interdisciplinarity, and policy and business engagement. We also included data for two comparator groups – all ESRC-linked publications, and a set of comparator awards on productivity-related topics – looking at publications over the same period. The approach taken is set out in detail in Annex H.
- **Review of Web of Science (WoS) and Scopus:** To understand broader publication trends around productivity, we completed a review of the academic databases WoS and Scopus using a search strategy, which is set out in Annex A. The intention of this analysis was to provide an initial broad picture of the status and trends of relevant literature prior to the programme, rather than to conduct a detailed bibliometric analysis.
- **Analysis of Gateway to Research (GtR):** We also conducted a search of GtR, a database of UKRI-funded research projects, publications, people, organisations and outcomes from that research, to understand what projects related to productivity had been supported prior to the PIP and what types of outcomes they had produced. The intention here was to provide a picture of the wider academic research landscape in productivity prior to the PIP investment. Details on the GtR analysis methods are explained in Annex E.
- **Desk research of parallel productivity research investments in the UK:** To complement the GtR analysis, we conducted desk research on four research investments deemed to be most similar to the PIP: PIN, CPE, LIPSIT and the Productivity Outcomes of workplace Practice, Engagement & Learning (PrOPEL Hub). We analysed their size, scope, aims, timeline, funder, total costs and what impacts they have achieved to better understand the nature of the field prior to PIP, its unique characteristics and what had been attempted previously.

2.6.3. Structure of the report

The remainder of this report sets out the findings of the first phase of the evaluation. First, we present the ToC we have developed for the PIP (Chapter 3), then we set out the evaluation framework (Chapter 4), and finally in Chapter 5 we provide our baseline assessment. Additional details on methodology and other background materials can be found in the annexes.

3. Theory of Change

3.1. Overview

This chapter sets out the Theory of Change (ToC) for the PIP. This consists of a visual presentation, or logic model, that presents the ToC in brief on one page and a wider narrative ToC that explores the intervention logic in more detail. The ToC was developed based on several inputs:

- Review of programme documentation: We reviewed a range of documentation including strategy documentation from the two existing investments, the applications for those two investments and documentation from ESRC regarding programme set-up including an initial draft logic model developed previously.
- Scoping interviews with key stakeholders involved with the programme and the two existing investments: We conducted a total of 13 interviews including individuals involved in the programme's inception and key stakeholders from ESRC, TPI and POID.
- Review of literature relating to other productivity research investments and wider ESRC programme evaluations: This includes prior evaluation and other documentation around a range of prior investments.
- ToC workshop with ESRC and the two investments, in which we shared a draft ToC for discussion and refinement: We held a half-day workshop with key stakeholders to discuss in detail a draft ToC and make revisions based on their input.

The ToC is intended to serve several purposes. Firstly, it provides a key input and guiding framework for our theory-based evaluation approach. As such, the evaluation framework and methods that follow in the next chapter build on the ToC. Secondly, it aims to articulate a shared understanding of the aims of the programme and how it is anticipated these will be achieved to help provide a common basis for discussion across different levels – from the overarching SPF level through to the specific investments: TPI, POID and the thematic investments. Finally, we hope it can provide a useful, external-facing presentation of the aims and operation of the programme to inform discussions with wider stakeholders. We note that achieving these multiple aims within one ToC can be challenging, since an external-facing ToC would benefit from a clear and simplified presentation while a ToC for internal analytical purposes benefits from capturing additional complexity (Davies 2018; Barr et al. 2019). We have aimed to strike a balance between these competing needs and have focused primarily on a clear and simple presentation here, both to facilitate application to the evaluation and aid wider communication. However, we have also developed an alternative presentation of the ToC (provided in Annex D), which aims to capture some of the nuances set out in the

narrative below as part of the visual presentation. This may be of use for internal thinking and discussion within the programme and with the investments.

Within the ToC, we have aimed to map the programme-level pathways through which the intended impacts can be achieved. These are necessarily high level, but are intended to provide a plausible picture, with assumptions, of the way in which the programme operates. Not all aspects of the ToC will apply to all investments, but all investments should be able to see their expected pathways and impact reflected across parts of the ToC. We note that the ToC is particularly focused on the existing investments, POID and TPI, necessarily so, because we have been able to consult with these groups and their aims and mode of operation are established. We intend to conduct a review and revision of the ToC in Phase 3 of the evaluation once the thematic investments are established, but at present the aims and pathways of these thematic investments may not be fully reflected.

3.2. Guide to the ToC

The ToC shown in Figure 6 takes a ‘logic model’ approach, capturing the inputs, activities, outputs, outcomes and impacts of the programme sequentially from left to right. The ToC is intended to be read from left to right, but this is not intended to imply a simple linear progression between these aspects; indeed, there will be many non-linearities and feedback loops within the operation of the programme. One non-linearity particularly highlighted within the logic model is the ‘learning cycle’ between outputs and outcomes, in which wider application and dissemination of outputs beyond the immediate sphere of the programme can inform those outputs and help refine approaches to communication and engagement, and also contribute additional learning on ways to improve productivity. There will likely be other non-linearities and complexities and we will aim to capture and explore these as they emerge throughout the evaluation.

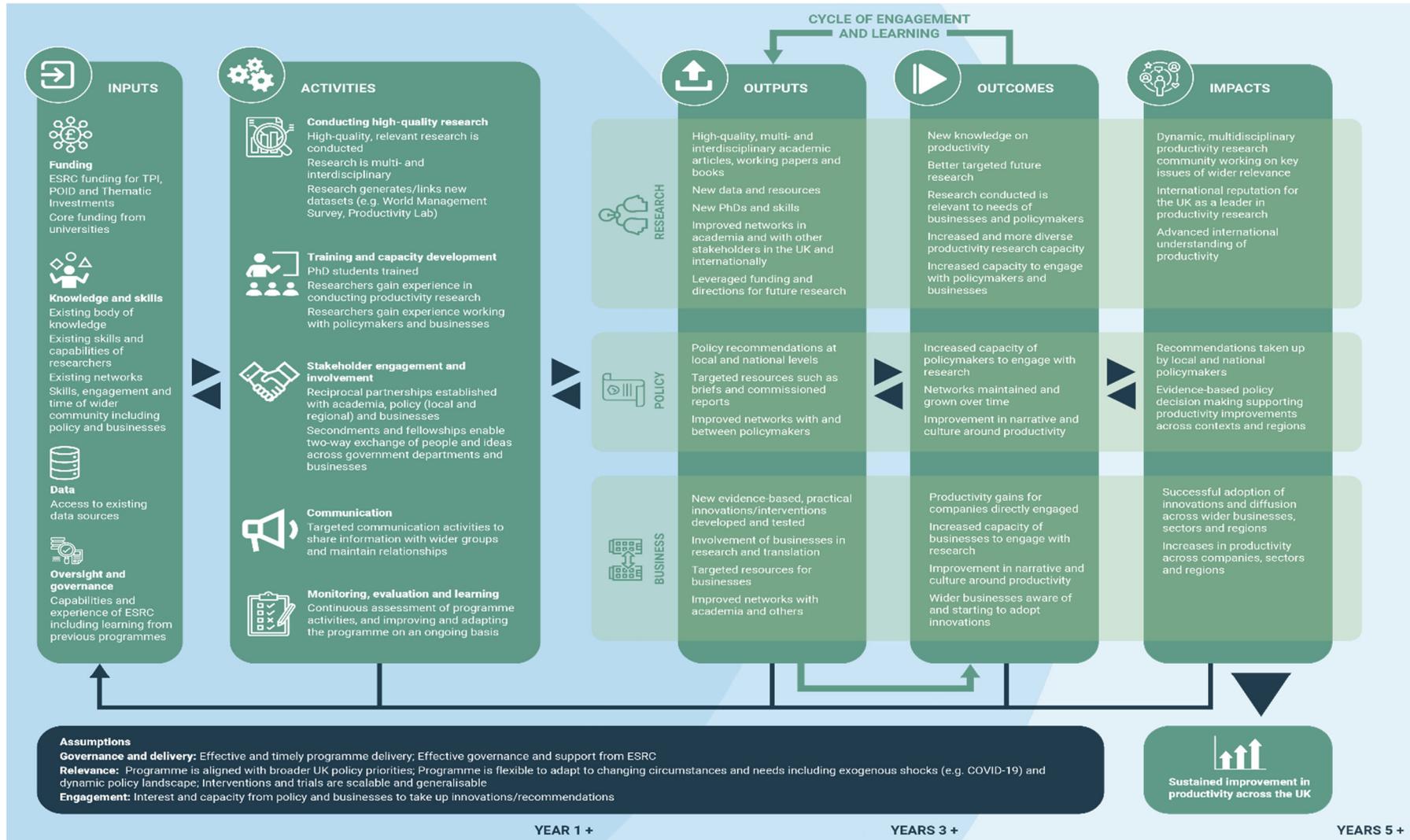
Equally, the picture is not ‘static’. The programme is operating within a changing landscape, including changes in government priorities (e.g. increasing importance of place-based interventions and ‘levelling up’), a changing socioeconomic landscape and some system ‘shocks’ – notably the COVID-19 pandemic. This context is captured within the ‘Assumptions’ field in the ToC. Reflecting this changing context, we recognise that the programme’s ability to achieve the ultimate intended impacts will be dependent on wider factors, however there are actions that the programme and thematic investments can take to ensure that work is ‘positioned for impact’, a concept also used in the ToC for the Global Challenges Research Fund (GCRF) (Barr et al. 2019). This is illustrated more fully in the alternative visual presentation provided in Annex D. Ensuring research is ‘positioned for impact’ will require iterative engagement with policymakers and industry, responding to opportunities to amplify change as they arise and building on existing networks, relationships and champions for the research. This will also require ongoing reframing of evidence and solutions, refinement of the discourse reflecting the changing environment and allowing ‘windows of opportunity’ for uptake of evidence to be capitalised upon.

As noted above, this is a programme-level ToC. As such, not all aspects of the ToC will apply to all investments, but all investments should be able to see their expected pathways and impact reflected across parts of the ToC. We have deliberately not attributed or allocated specific aspects of the ToC to either

POID or TPI, and although we anticipate the different investments will likely operate in different ways we do not seek to call these out explicitly in the ToC. Rather, the ToC is intended to capture the intended mechanisms of operation of the programme, capturing the collective action of the combined investments and the role and actions of ESRC. The specific ways the different investments contribute, and their complementarity, will be explored further in Phase 2 of the evaluation.

Finally, we highlight in the logic model the potential timelines over which we might expect to see outputs, outcomes and impacts to emerge. These are indicative starting timepoints and we might expect a wide variation in these timelines. Noting the ‘positioning for impact’ concept highlighted above, the timeframes for achievement of the ultimate impacts are highly dependent on wider factors and the extent to which windows of opportunity become available. Therefore, although the indicated five years is the soonest timeframe, we might expect to start seeing some of these ultimate impacts, it will likely be considerably longer before many of these can be realised. In addition, we do not expect such ultimate impacts to be directly attributed to the actions of the programme – indeed there will be a wide range of other factors including other research and wider social and economic factors that would likely contribute to such impacts. Rather, with this ToC we aim to illustrate the pathways through which the programme can be demonstrated to make a plausible contribution to these impacts on productivity. As we move from left to right across the ToC, the outputs, outcomes and impacts are increasingly distant from and beyond the direct influence of the programme. Therefore, although we might expect the programme to have significant influence on and control of the outputs it produces, when we reach impacts, we might expect the level of influence that programme actors can have is reduced and there will be a wider range of other factors that affect these potential achievements. This is not to say the programme does not bear responsibility for working to achieve these impacts; rather that the extent of and timeline for achieving these impacts is dependent of a wide range of factors. As articulated above, programme actors can only look to position the work for impact and take opportunities for impact when they arise.

Figure 6: Logic model summary of the PIP ToC



3.3. Inputs

We identify inputs to the programme across four main categories, as follows:

Funding: This includes the funding provided from the SPF to ESRC directly for investment in the programme, which is allocated to TPI, POID and the thematic investments, plus the core funding from universities, which covers other aspects of the work of the programme including existing infrastructure and capital as well as salary costs for some individuals.

Knowledge and skills: The programme builds on an existing body of knowledge in relation to productivity, reflecting the prior research conducted both in the UK and elsewhere. In addition, the programme draws on the existing skills and capabilities of researchers involved in delivering the programme as well as the skills, time and engagement of the wider community including policymakers and industry stakeholders – the majority of whom contribute their time and expertise to the programme through goodwill. Existing networks between and within these stakeholder groups (for example, organisations like Be The Business or the PIN) also provide an important input and starting point for the programme to develop relationships.

Data: Existing data sources on productivity, such as ONS, EU KLEMS (EU KLEMS 2022), Organisation for Economic Co-operation and Development (OECD) and SPINTAN are an important input to research within the programme (SPINTAN 2023).

Oversight and governance: Finally, the existing capabilities and experience of ESRC in running research programmes, including prior productivity research, from the process of programme design and funding allocation through to programme management are also a key input enabling the programme to be established.

3.4. Activities

We identify key activities conducted within the programme that build on the inputs across five categories:

Conducting high-quality research: Building on the existing body of knowledge, a key activity within the programme is the conduct of high-quality, relevant research that addresses productivity issues. In line with the aims of the SPF, the intention is that the research, where appropriate, is multi- and interdisciplinary, drawing on diverse knowledge and approaches. Another key activity within that research is the generation

INPUTS

- **Funding**
 - ESRC funding for TPI, POID and Thematic Investments
 - Core funding from universities
- **Knowledge and skills**
 - Existing body of knowledge
 - Existing skills and capabilities of researchers
 - Existing networks
 - Skills, engagement and time of wider community including policy and businesses
- **Data**
 - Access to existing data sources
- **Oversight and governance**
 - Capabilities and experience of ESRC including learning from previous programmes

(and/or linkage) of new datasets to provide new evidence casting light on productivity challenges. Examples here from the programme include the World Management Survey and the Productivity Lab, both of which are producing new data and insights on productivity.

Training and capacity development: This is another key activity within the programme. Beyond the training of new PhD students and general progression of the skills and careers of those involved, the programme provides the opportunity for more researchers to gain experience in conducting productivity research and, particularly, in working with policymakers and business on these issues.

Stakeholder engagement and involvement: The development of reciprocal partnerships across academia, with businesses and business organisations, and with policymakers at different levels (e.g. local and regional) is core to the operation of the programme. One way in which this is facilitated is through secondments and fellowships that allow ideas to be exchanged and for individuals to gain experience working in a new setting and context to strengthen those ties and bring new insights. This engagement process is key not just to the later dissemination and uptake of findings but also to the relevance and targeting of the research conducted.

Communication: Beyond the direct engagement with key stakeholders, communication with wider groups is also a key activity of the programme, requiring the development of targeted communication strategies and materials to meet the needs of different groups and ensure key relationships, beyond those directly involved and engaged on a regular basis, are maintained.

Monitoring, evaluation and learning: Another key activity conducted at both the programme and investment level is ongoing monitoring and evaluation of the programme to inform learning. This includes continuous assessment of programme activities, reflecting on what is working well and where there is scope for improvement, and building on this evidence to improve and adapt aspects of the programme as necessary on an ongoing basis. This also involves responding to changes in the landscape and context in which the programme is operating, which may also require agility, adaptability and course correction to ensure the programme can still deliver on its aims.

3.5. Outputs

We identify a range of outputs across the programme that we have clustered into three categories – knowledge, policy and business – which are also used to group the corresponding outcomes and impacts.

ACTIVITIES

- 
Conducting high-quality research
 High-quality, relevant research is conducted
 Research is multi- and interdisciplinary
 Research generates/links new datasets (e.g. World Management Survey, Productivity Lab)
- 
Training and capacity development
 PhD students trained
 Researchers gain experience in conducting productivity research
 Researchers gain experience working with policymakers and businesses
- 
Stakeholder engagement and involvement
 Reciprocal partnerships established with academia, policy (local and regional) and businesses
 Secondments and fellowships enable two-way exchange of people and ideas across government departments and businesses
- 
Communication
 Targeted communication activities to share information with wider groups and maintain relationships
- 
Monitoring, evaluation and learning
 Continuous assessment of programme activities, and improving and adapting the programme on an ongoing basis

These three groups – wider researchers, policymakers and business stakeholders – are identified as the key audiences for the work of the programme. Outputs are characterised as the direct products of the work of the programme and its investments, over which the programme has significant agency based on the range and nature of activities they conduct. As such, if the activities planned are conducted, these outputs should be produced. We anticipate that these outputs should start to emerge from one year after the investments commence. However, some will take longer to emerge and others will evolve over time. For example, while we might expect to see some new data and resources emerging after a year, these will broaden further over time, and we would not expect to see new academic articles or books based on productivity research within the first year; these typically take several years to produce due to a range of reasons, not least publication timelines. The outputs we anticipate will be produced across categories are as follows.

Knowledge: As well as new written outputs such as academic articles, working papers and books, the activities of the programme can also be expected to produce new data and resources to facilitate further research and support other uses. The programme will also upskill individuals involved in the programme and develop improved networks between researchers and beyond the research sphere, both in the UK and internationally. It is also anticipated that the evidence and data generated will inform future research and funding invested in productivity research, whether conducted by those involved in the programme or elsewhere.

Policy: The programme will produce concrete policy recommendations, which may be at different levels (local, regional, national) and these and other key findings will be shared in targeted outputs, including resources such as briefs, but also through commissioned reports specifically for policy audiences. Through the engagement and communication activities planned, another key output will be improved networks with and between policymakers engaged in productivity issues.

Business: The programme aims to develop and test evidence-based practical innovations and interventions to address productivity. Beyond this, another key output of the work of the programme will be the experience of businesses and representative groups being involved in research and translation, which can help develop capacity to engage in evidence-based practice in the future. The programme will produce



targeted resources aimed at business stakeholders, and through the planned engagement and communication activities another key output will be improved networks of business with academia and others.

As highlighted above in Section 3.2, as we move towards the right-hand side of the ToC, the level of control that the programme and the investment have over the extent of engagement by wider individuals reduces. As such, the extent to which these outcomes are achieved and leveraged into impacts may depend on wider external factors. However, by taking actions to position their work for impact as set out here, the investments can ensure that opportunities to achieve impact are taken when they emerge.

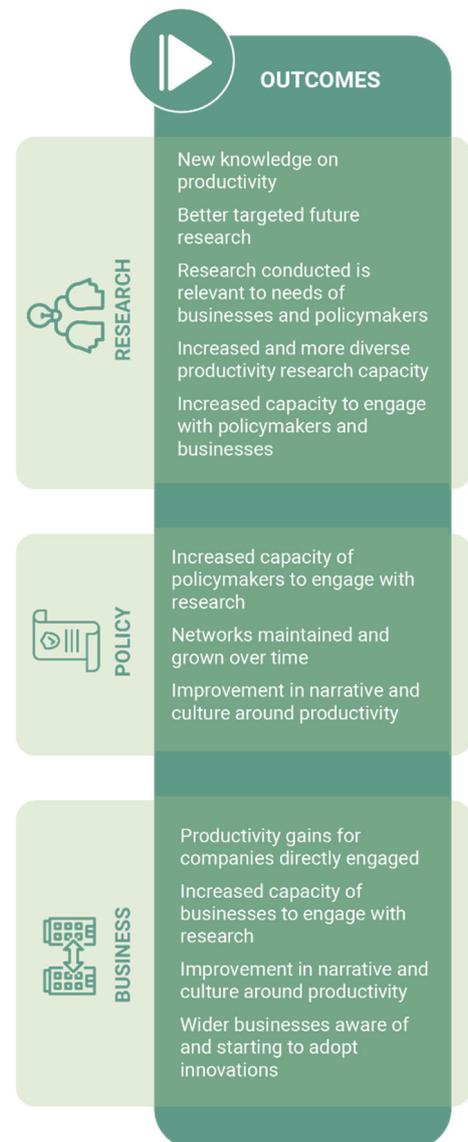
3.6. Outcomes

As for outputs, the outcomes resulting are also categorised into the same three groupings: knowledge, policy and business. Under outcomes, we capture the implications of the outputs produced for the wider landscape as they accrue over time. For example, one direct output of the programme will be the publications produced and the wider outcome of those publications is that we have new knowledge on productivity, which will accumulate and grow over the lifetime of the programme. We anticipate these outcomes may start to emerge from three years following the investment, though this will vary and we might expect many of these to emerge and grow over a much longer time period. The outcomes identified are as follows.

Knowledge: New publications, data and resources will lead to key outcomes in terms of new knowledge on productivity and better targeted future research in the area. The increased skills and networks of the individuals involved should help ensure research conducted is relevant to the needs of businesses and policymakers, and, through the multi- and interdisciplinarity of the research as well as the skills growth, ensure we have increased and more diverse productivity research capacity in the UK. As noted, networks and experiences gained should help ensure researchers have increased capacity to engage with policymakers and businesses.

Policy: The intention is that the networks developed will be maintained and grown over time and, through long-term engagement and targeted communications, policymakers will have an increased capacity to engage with research and evidence.

Alongside this, and in addition through targeted resources and recommendations, the programme should help to change and improve the narrative and discourse around productivity in policy circles.



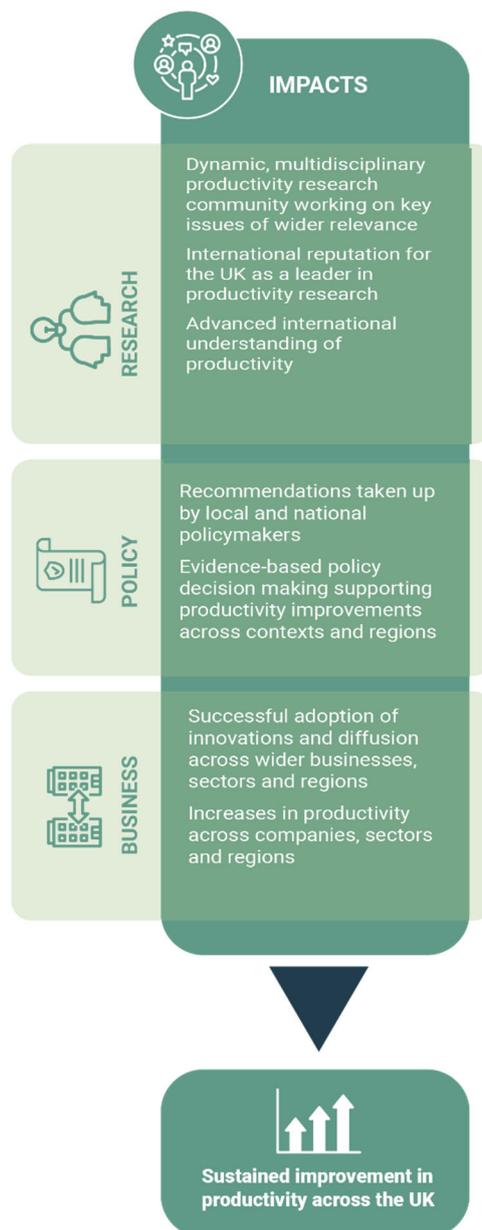
Business: For those businesses directly engaged and involved in the work of the programme, we might expect to see productivity gains start to emerge where interventions are tested and found to be successful. More broadly, through the networks, engagement and communication activities, the programme intends to increase the capacity of businesses to engage with research and start to change and improve the narrative and culture around productivity across sectors. Through targeted wider communications and outreach through networks and beyond those directly engaged, the programme can start to make wider businesses aware of innovations and their benefits, and hence start to adopt innovations that are relevant to them

3.7. Impacts

The programme’s ultimate impacts are further beyond the direct influence of the programme itself and, as set out previously, will be conditional not just on the programme but a wider range of factors. Therefore, the programme cannot directly determine these ultimate impacts and their timing, but rather can position itself for impact by ensuring the relationships, resources and actions are in place to enable evidence to be used effectively when the time is right. As such, the specified timeframe for these impacts to potentially start to emerge of five years post-investment is indicative and will depend on the wider societal, political and economic context. Although we can only expect the programme to contribute to these impacts, we do anticipate that the outputs and outcomes set out provide a plausible pathway through which that contribution can be expected to occur, and can be tested and explored through the course of the evaluation. We set out the impacts in three categories as seen for the outputs and outcomes:

Knowledge: Building on the outcomes specified, the programme can contribute towards the development of a dynamic and multidisciplinary productivity research community working on key issues of wider relevance to policymakers and business stakeholders. The programme can also contribute to advancing academic understanding of productivity on an international level and correspondingly to building and strengthening the international reputation of the UK as a world leader in productivity research.

Policy: Based on the intended outcomes, over time the increased engagement of policymakers with evidence and improved discourse and culture around productivity should help contribute to more evidence-based policy decision making around productivity, including the uptake of policy recommendations by local and national policymakers. This in turn should support productivity improvements over time across contexts and regions.



Business: Both the practical interventions developed and tested and the growth of industry capacity to engage with research evidence should, over time, contribute to the successful adoption of those innovations and their diffusion across different contexts (companies, sectors and regions). In turn, this increase in evidence-based practice should contribute to increase in productivity across those different settings.

In addition to these three domains, the ultimate intention of the programme overall is, through impacts in these different areas, to contribute to a sustained improvement in productivity across the UK. Though this is the ultimate intention and underlying purpose of the programme, being able to evidence a clear contribution to this goal is unlikely within the lifetime of this evaluation and may also be challenging even over the longer term given the multiple steps from the activities of the programme to this long-term goal and the myriad other likely contributing factors. We do not anticipate identifying measurable impacts on aggregate productivity resulting from the PIP. However, this ToC provides a plausible pathway through which the contribution of the programme can be tracked, which can be further tested and refined.

3.8. Assumptions

Finally, we identify a number of key assumptions underlying this ToC across three categories:

Governance and delivery: We have made assumptions about the effective and timely delivery of the programme, as well as effective governance and support from ESRC. If the programme is not well run across levels, this will limit the extent to which it can deliver the activities planned and their subsequent outputs, outcomes and impacts. These aspects will be explored in detail through the process evaluation.

Relevance: We know the programme is operating in a wider context and as such its relevance and alignment with this complex and changing landscape is a condition of its being able to move from programme activities and direct outputs to achieve the intended outcomes and impacts. We make the following assumptions:

- The programme is aligned with broader UK policy priorities.
- The programme is flexible to adapt to changing circumstances and needs including exogenous shocks (e.g. COVID-19) and a dynamic policy landscape including the net zero transition.
- The interventions tested and trials conducted are scalable and generalisable to a wider context.

Engagement: The programme is reliant on the interest and capacity from policy and businesses to take up innovations/recommendations developed. This is a key underlying assumption both for direct delivery of the activities of the programme (particularly the engagement strand), which is heavily reliant on the goodwill and time of wider stakeholder groups, and for the achievement of the programme's intended outputs, outcomes and impacts. This may well be a challenge for the programme due to the diversity of the relevant stakeholders involved and the wide range of other issues that may be capturing their attention. Ensuring effective ongoing engagement and attention to productivity challenges will be key to delivery of the programme.

4. Evaluation framework

4.1. Overview

In the preceding chapter, we set out a ToC for the PIP. The ToC presented a schematic representation of the PIP inputs, activities, outputs, outcomes and impacts and categorised them into our key evaluation themes: knowledge, policy and business. These themes represent broad, high-level categories that aim to conceptualise and group together related processes and impacts. In this chapter, we use these evaluation themes to establish an evaluation framework for the PIP. Taking each evaluation theme in turn, we operationalise that theme for evaluation by identifying EQs, indicators and data sources. In doing so, we establish evaluation frameworks for both the process and the impact evaluation of the PIP.

The evaluation framework contains EQs that have been developed to reflect the programme as it has been implemented. These questions were developed based on the original EQs set out in the ITT and the evaluation objectives, and have been refined to reflect the content of the ToC. They have also been reviewed and revised based on input from key programme stakeholders at ESRC, TPI and POID.

In the remainder of this chapter, we set out the evaluation framework for both the process evaluation and impact evaluation. We then specify how that evaluation framework will be implemented across the remaining four phases of the evaluation.

4.2. Process evaluation

The process evaluation cuts across the ToC as it seeks to understand how the programme is performing and on track to deliver anticipated impacts. It will do so in a primarily qualitative way; the principal means of data collection will be interviews, workshops and reviews of programme documentation. There are eight key PEQs to consider, as set out in Table 2 below, which also details the indicators and methods intended to address those questions and their alignment both to the ToC and the wider objectives of the PIP and the SPF at a fund level.

Table 2: Process evaluation framework

Evaluation question	Indicators	Methods	Relevant ToC component	Relevant SPF and programme objective
<p><i>PEQ1. To what extent, and how effectively, are the investments coordinated and together amount to a coherent programme?</i></p>	<ul style="list-style-type: none"> • Perceptions of internal and external stakeholders on complementarity of investments • Examples of events and interactions and events featuring stakeholders from across PIP • Examples of POID, TPI and thematic investments working together coherently 	<p>Qualitative interviews with key stakeholders involved with PIP</p> <p>Review of programme documentation</p> <p>Case studies of selected PIP impacts and how coherence of the programme played a causal role</p>	<p>Outputs Improved networks in academia and with other stakeholders in the UK and internationally</p> <ul style="list-style-type: none"> • 	<p>Programme objective To form an interdisciplinary community taking a coordinated, interdisciplinary approach to productivity research and policy addressing long-term productivity challenges</p>
<p><i>PEQ2. How has the design, commissioning and delivery of the PIP identified, addressed and engaged with the needs of policymakers, businesses, researchers and wider academic stakeholders, and workers and worker representatives, and what has this meant for ongoing programme design and delivery?</i></p>	<ul style="list-style-type: none"> • Perceptions of key stakeholder across groups (academia, industry, policy, worker representatives) on their wider engagement in the programme, responsiveness of the programme and consequences/implications of engagement • Examples of stakeholder needs converted to programme activities • Representation of business and trade unions on boards and governing councils • Engagement activities listed in programme reporting and Researchfish submissions 	<p>Researchfish data review</p> <p>Workshop with policy, business and trade union stakeholders</p> <p>Review of programme documentation and programme reporting</p>	<p>Activities Reciprocal partnerships established with academia, policy (local and regional) and businesses</p>	<p>Programme objective To forge mutual, lasting engagement between the UK productivity-related research community and policymakers, practitioners and business</p>

<p>PEQ3. How effectively has the PIP mobilised existing multi- and interdisciplinary knowledge and the wider UK and international research community?</p>	<ul style="list-style-type: none"> • Number and nature (national/international, multi-/interdisciplinary) of external collaborations • Number and range of disciplines included as authors in publications from the PIP • Number and range of disciplines cited in PIP publications • Examples of learning from international programmes and previous investments • Perceptions of stakeholders external to the programme on their involvement • Collaboration and partnerships listed in programme reporting and Researchfish data 	<p>Scientometric analysis</p> <p>Researchfish data analysis</p> <p>Review of programme documentation</p> <p>Qualitative interviews with stakeholders external to the programme</p>	<p>Input Existing body of knowledge</p> <p>Existing skills and capabilities of researchers</p> <p>Existing networks</p>	<p>SPF output New academic collaborations and relationships, including across disciplines</p> <p>SPF objective Drive an increase in high-quality multi- and interdisciplinary research and innovation (MIDRI)</p> <p>Programme objective To form an interdisciplinary community taking a coordinated, interdisciplinary approach to productivity research and policy addressing long-term productivity challenges</p>
<p>PEQ4. How well has the programme adjusted and adapted appropriately to a changing landscape (e.g. COVID-19, net-zero transition)?</p>	<ul style="list-style-type: none"> • Stakeholders' perception of and satisfaction with the adaptability of programme • Evidence of changes in approach over time and in response to critical events, and the rationale for these changes 	<p>Qualitative interviews with stakeholders</p> <p>Review of programme documentation</p>	<p>Assumption Programme is flexible to adapt to changing circumstances and needs including exogenous shocks (e.g. COVID-19) and dynamic policy landscape</p>	<p>SPF objective To ensure the system is able to respond to strategic priorities and opportunities</p>
<p>PEQ5. How have ESRC, TPI, POID and thematic investment management and governance systems supported and enabled the timely delivery of</p>	<ul style="list-style-type: none"> • Stakeholder satisfaction and views on effectiveness • Recommendations of meeting minutes • Correlation between recommendations of Advisory Committee, Steering Group and competition specifications • Industry, academic and policy lead stakeholder feedback • Perceptions of board members 	<p>Process mapping of governance systems</p> <p>Qualitative interviews with key stakeholders within the programmes</p>	<p>Inputs Oversight and governance: Capabilities and experience of ESRC, including learning from previous programmes</p>	<p>Programme objective To improve the systematic and sustained generation and use of evidence and the capability to embed research within policy and practice across</p>

<p><i>research, engagement and training activities?</i></p>	<ul style="list-style-type: none"> • Examples of the role of governance structures in supporting (or impeding) effective delivery against PIP aims 	<p>Internal document review</p> <p>Case study development to understand the role of governance structures in delivering against the PIP's aims</p>	<p>Assumptions Governance and delivery: Effective and timely delivery; Effective governance and support from ESRC</p>	<p>regions and sectors to improve UK productivity</p>
<p><i>PEQ6. How has the programme used monitoring, evaluation and learning to drive continuous improvements in planning and delivery?</i></p>	<ul style="list-style-type: none"> • Stakeholder perceptions on extent and nature of learning and improvement • Escalating/de-escalating RAG status • Perceptions and documentary evidence on the way in which evidence is used and informs decision making 	<p>Process mapping of monitoring, evaluation and learning systems</p> <p>Qualitative interviews with key internal stakeholders</p> <p>Workshop with key PIP stakeholders</p> <p>Internal document review</p>	<p>Activities Monitoring, evaluation and learning: Continuous assessment of programme activities, and improving and adapting the programme on an ongoing basis</p>	<p>SPF outcome Increased capacity of research and development (R&D) spend to address emerging priorities</p>
<p><i>PEQ7. How effectively has the programme built skills and capacity across different stakeholder groups?</i></p>	<ul style="list-style-type: none"> • Perceptions of researchers and business and policy stakeholders • Examples of upskilling in policy and business stakeholder groups • Number of PhDs completed within the programme • Number of fellowships completed within the programme • Programme reporting of evidence on next destinations of individuals trained 	<p>Qualitative interviews with key internal and external stakeholders</p> <p>Case study development to understand</p>	<p>Activities Stakeholder engagement and involvement: Reciprocal partnerships established with academia, policy</p>	<p>Programme objectives To form an interdisciplinary community taking a coordinated, interdisciplinary approach to productivity research and policy addressing long-term productivity challenges</p>

		<p>processes of upskilling among key external stakeholder groups</p> <p>Internal document and data review</p>	<p>(local and regional) and business</p> <p>Secondments and fellowships enable two-way exchange of people and ideas across government departments</p> <p>Training and capacity development PhD students trained</p> <p>Researchers gain experience in conducting productivity research</p> <p>Researchers gain experience working with policymakers and businesses</p>	<p>To forge mutual, lasting engagement between the UK productivity-related research community and policymakers, practitioners and business</p> <p>SPF outcome Enhanced research capability and capacity</p>
<p><i>PEQ8. To what extent has the PIP demonstrated a commitment to equality, diversity and inclusion, environmental sustainability, and good people management practices, across its approach to achieving business, policy and academic impact?</i></p>	<ul style="list-style-type: none"> • Diversity (demographic, sector and regional background) of key decision-making groups, including review panels, oversight groups and peer reviewers • Proportion of engaged stakeholders with different demographic characteristics (e.g., gender, ethnicity) • Perception of key stakeholders on the extent to which the programme is open to stakeholders (researchers and otherwise) from diverse backgrounds • Perceptions of environmental partners and groups; Perceptions of work on POID’s green growth and directed technical change programme and TPI’s social, environmental and technological transitions • Perceptions of programme staff on people management; Mechanisms in place to support and engage staff; Perceptions of trade unions 	<p>Internal document and data review</p> <p>Qualitative interviews with key internal and external stakeholders</p> <p>Process mapping to supporting understanding of internal processes</p>	<p>Assumptions Effective and timely delivery; effective governance and support from ESRC</p> <p>Outputs High-quality multi- and interdisciplinary academic articles, working papers and books</p>	<p>Programme objective To involve un- and underexplored sectors, places and groups, including addressing strong spatial dimensions and understanding the long tail, challenges and successes of larger businesses and those at the productivity frontier</p> <p>SPF objective To ensure the system is able to respond to strategic priorities and opportunities</p>

PEQ1 is focused on the complementarity and coherence of constituent parts of the PIP and the extent to which they have avoided duplication. We ask here how TPI, POID and the thematic investments have acted as distinct investments that achieve related but non-overlapping goals. This will likely be a qualitative assessment, interviewing relevant stakeholders and testing their perceptions. Case studies will also play a role in highlighting the respective roles of the investments in achieving selected impact and whether there has been overlap.

PEQ2 and PEQ3 are concerned with the programme's engagement strategy. The latter is focused on engagement with wider groups and relevant stakeholders (that may have poor to no previous engagement with the programme), while the former focused on its engagement with pre-existing knowledge. Clearly, the programme does not operate in a vacuum, and it will be important to understand how, if at all, it has exploited pre-existing knowledge. PEQ2 involves primarily qualitative analysis and interviews as we aim to understand the views of the wide variety of stakeholders with whom the programme aims to engage, whereas PEQ3 will be mainly quantitative and will be informed primarily from the scientometric analysis.

PEQ4 asks around the flexibility of the programme and how it can adapt to macro shocks, such as COVID-19 and Brexit, but also new policy priorities, such as the levelling up agenda and the shifts from Industrial Strategy to Plan for Growth. This will primarily be assessed qualitatively through interviews and review of relevant documentation (e.g., meeting minutes), which detail the response to changes in context as they occur.

PEQ5 and PEQ6 are concerned with the programme's management and governance arrangements and how they can support the timely delivery of research, engagement and training activities, all while putting in place robust structures to monitor and drive ongoing learnings and improvements of and to the programme. These questions will involve process mapping, carried out as part of the formative evaluation, to provide us with an overview of the governance and monitoring, evaluation and learning systems of the programme. In these questions, we are interested in the governance of the entire programme, including the programme commissioning processes and ESRC's role as a funder. We will rely to a significant extent on qualitative methods for these questions, in particular interviews with key programme stakeholders. This will help us to understand their perceptions of the effectiveness of the programme's overall governance arrangements, including the systems in place to support monitoring, evaluation and learning. Interviews will be supported by review of internal document and data. These data collection exercises will also feed into the selection of relevant case studies, which will detail how effective the programme's governance structures have been towards the delivery of the programme's core aims.

PEQ7 probes how effectively the programme has supported the development of skills and capacity among researchers, policymakers and businesses. As with PEQ5 and PEQ6, we will primarily rely on qualitative methods to answer PEQ7. Initially, interviews with key internal and external stakeholders will allow us to identify how, and the extent to which, the programme has supported upskilling in key stakeholder groups. This will, in turn, underpin the development of case studies highlighting the processes as well and impact of the programme's work in increasing capacity across stakeholder groups. The internal document and data review will enable us to collect and analyse specific data relating to, for example, the number of PhDs and fellowships completed, providing a quantitative aspect to our analysis.

PEQ8 runs across the entirety of the programme, from its underlying assumptions to early outputs, asking how the programme will meet broader societal objectives (see Section 3.1). To provide a broad overview of the processes in place to support good people management across the programme, we will gather insights from the process mapping exercise carried out in the framework of the formative evaluation. With this informing our high-level understanding of PIP's processes, qualitative interviews with internal and external stakeholders will enable us to understand the perceptions of external environmental partners of the programme's commitment to sustainability and the programme's track record of working to that effect through its research programme. Interviews with internal stakeholders will also allow us to gauge the extent to which the programme is perceived to be open to stakeholders from different backgrounds, as well as programme employees' perceptions of the processes in place to support and engage staff. The qualitative interviews will be supported by our internal document and data review, which will provide us with precise information on, among other things, demographics, sectors and regional diversity of key groups within the programme.

4.3. Impact evaluation

4.3.1. Research

The EQs in this theme correspond to the output and outcomes section of the ToC under the cross-cutting 'knowledge' theme, as shown in Figure 7.

Figure 7: Knowledge cross-section of PIP ToC



We have identified five EQs for the research impact evaluation, which are detailed in Table 3 below along with information on the indicators and methods that will be used to address them, and their alignment with the ToC and the wider goals of the PIP and SPF.

Table 3: Research impact evaluation framework

Evaluation questions	Indicators	Methods	Relevant ToC component	Relevant SPF and programme objective
<p><i>RIEQ1. To what extent has the programme delivered a step change in the quality, international recognition and multidisciplinary of UK productivity research?</i></p>	<ul style="list-style-type: none"> • Key stakeholders' perception of PIP's research quality and degree of interdisciplinarity • Visits and enquiries from international productivity programmes and researchers • Number of citations of PIP research from outside the UK and across fields of research • Number of different disciplinary backgrounds represented in PIP investments • Number of projects with partners from multiple disciplines • Field normalised citation numbers and proportion of highly cited publications resulting from the investments • Mean number of citing disciplines and number and percentage of publications being cited by more than five disciplines • Number of papers co-authored by researchers from different disciplines 	<p>Key informant interviews</p> <p>Review of quarterly programme reporting</p> <p>Scientometric analysis</p> <p>Analysis of Researchfish data</p>	<p>Outputs</p> <p>High-quality, multi- and interdisciplinary academic articles, working papers and books</p>	<p>SPF objective</p> <p>Enhanced research capability and capacity</p> <p>Programme objectives</p> <p>To form an interdisciplinary community taking a coordinated, interdisciplinary approach to productivity research and policy addressing long-term productivity challenges</p>

<p>RIEQ2. Has the PIP advanced the evidence base relating to UK and regional productivity, particularly in relation to finding practical solutions to the UK's productivity challenge?</p>	<ul style="list-style-type: none"> • Number and quality (based on citation measures, where possible) of working papers, journal articles and policy briefs published by the PIP and PIP-affiliated researchers • Number and importance of new datasets created by PIP-affiliated research • Perceptions of key policy and business stakeholders of the relevance of PIP research and data • Perceptions of academics of the degree to which our understanding of productivity challenges has improved as a result of data, research and evidence from the PIP. • Number of PIP research projects and pilot schemes funded through RPFs/Business Innovation Programme • Number of regional productivity forum submissions of evidence to the Productivity Commission • Number of commissioned reports, research briefs and recommendations for national and local government 	<p>Scientometric analysis</p> <p>Analysis of Researchfish data</p> <p>Key informant interviews</p>	<p>Outcomes</p> <p>New knowledge on productivity</p> <p>Research conducted is relevant to needs of businesses and policymakers</p>	<p>SPF objective</p> <p>Improved evidence for policy and decision making across government</p> <p>Programme objectives</p> <p>To develop solutions and interventions for improving productivity based on high-quality evidence that can inform policy and be embedded within organisations</p> <p>To involve un- and underexplored sectors, places and groups, including addressing strong spatial dimensions and understanding the long tail, challenges and successes of larger businesses and those at the productivity frontier</p>
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<p>RIEQ3. How are productivity-related interventions and innovations developed by the PIP perceived by and useful to policymakers, businesses, researchers and wider academic stakeholders, workers and worker representatives, considering, for example, their practicality, novelty, risk and suitability for development and/or investment?</p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders in policy, academia, business and among worker representatives of productivity-related interventions and innovations developed by PIP • Examples of PIP researchers acting as experts to government or providing evidence to select committees • Number of meetings and events with policy makers • Examples of innovations and pilot schemes developed through PIP and trialled with businesses • Number of citations of PIP research outputs in government policy documents and reports • Number of highly cited productivity-relevant publications from the PIP in the top five per cent of their field 	<p>Key informant interviews</p> <p>Analysis of Researchfish data</p> <p>Scientometric analysis</p> <p>Workshop with key PIP stakeholders</p>	<p>Outputs</p> <p>Improved networks in academia and with other stakeholders in the UK and internationally</p> <p>Outcomes</p> <p>Research conducted is relevant to the needs of businesses and policymakers</p>	<p>SPF objective</p> <p>Increased partner organisation confidence in investments in MIDRI</p> <p>Programme objective</p> <p>To forge mutual, lasting engagement between the UK productivity-related research community and policymakers, practitioners and business</p>
<p>RIEQ4. To what extent has the PIP linked up effectively with wider research and innovation priorities and opportunities?</p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders in academia and in other productivity research investments of how effectively PIP has linked up with wider research and innovation priorities. • Number of collaborations with other productivity investments and initiatives • Number of partnerships with non-PIP participating universities • Number of productivity fellowships granted to scholars from non-PIP participating universities 	<p>Key informant interviews</p> <p>Analysis of Researchfish data</p> <p>Scientometric analysis</p> <p>Workshop with key PIP stakeholders</p>	<p>Outcomes</p> <p>Research conducted is relevant to needs of businesses and policymakers</p>	<p>SPF objectives</p> <p>Enhanced relationships across UKRI councils, public sector research establishments (PSREs) and other government departments (OGDs)</p> <p>Better alignment of R&D spend with government priorities</p> <p>Programme objective</p> <p>To improve the systematic and sustained generation and use of evidence and the capability to embed research within policy and practice across regions and sectors to improve UK productivity</p>

<p><i>RIEQ5. What has been the impact of the PIP on academic capacities and capabilities for productivity research? How enduring are these improvements?</i></p>	<ul style="list-style-type: none"> • Number of secondments, placements and internships funded • Number of policy, business, early-career and international fellowships funded • Number of highly cited productivity-relevant publications • Perceptions of individuals receiving training/skills development from the PIP of its impact on their capacity and capability for productivity research • Perceptions of key academic stakeholders of PIP's capability/capacity for producing high-quality research • Key stakeholders' perceptions of UK researchers' capability to produce relevant research at different levels including firm, local, regional, national and international levels • Amount of follow-on funding received for further productivity research 	<p>Scientometric analysis</p> <p>Analysis of Researchfish data</p> <p>Key informant interviews</p>	<p>Outcomes</p> <p>Increased and more diverse productivity research capacity</p>	<p>SPF objective</p> <p>Enhanced research capability and capacity</p> <p>Programme objective</p> <p>To create a step-change improvement in productivity research and innovation in the UK by establishing sustainable world-leading structures and capabilities delivering a coordinated and comprehensive programme of work directly addressing the challenge of improving UK productivity</p>
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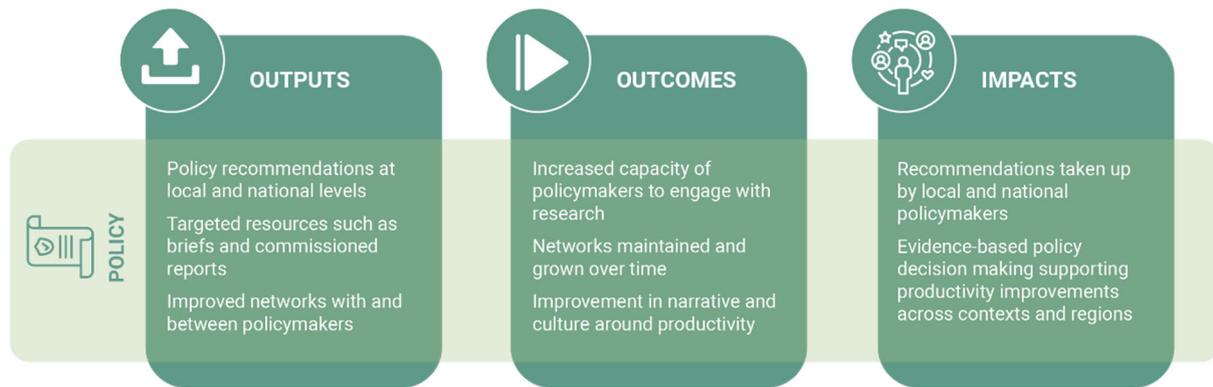
This theme seeks to understand the extent to which PIP has successfully led to a step-change improvement in the UK's productivity research. This is achieved by exploring the degree to which the programme has improved the productivity-related evidence base in order to produce research that is relevant and responsive to the needs of key stakeholders. Specifically, RIEQ1 and RIEQ2 investigate the extent to which the programme has produced high-quality, internationally recognised, multi- and interdisciplinary knowledge of the UK's productivity challenge and its regional dimensions. Meanwhile, RIEQ3 focuses on key stakeholders' perceptions of PIP research output in terms of its relevance and practicality. RIEQ4 seeks to understand how effectively the programme has helped to join up the productivity research agenda with the UK government's broader R&I priorities. Finally, RIEQ5 asks whether the programme has enhanced researchers' capacity and capability for producing productivity-related research.

The EQs under this theme are expected to draw on a combination of quantitative and qualitative indicators. Qualitative indicators relating to, for example, the perceptions of key stakeholders are likely to play an important role in answering RIEQ1, RIEQ3 and RIEQ5. For these questions, quantitative indicators, such as the number of citations of PIP-affiliated research, are likely to be used to add additional evidence to support the stakeholder interviews, though we note that the analysis of citations to research from the programme will be partial at this stage given the typical time lags from funding to publication and from publication to citation. Conversely, quantitative indicators are anticipated to *guide* our approach to answering RIEQ2 and RIEQ4, with qualitative indicators expected to fill in any outstanding gaps in our approach. In terms of our data collection methodologies, this means that key stakeholder interviews conducted in Phases 3 and 5 of the evaluation will be important to answering the EQs across this theme. Analysis of Researchfish data and scientometric analysis carried out in Phases 3 and 5 will also feed into answering all questions across this theme but may be especially relevant for answering RIEQ2 and RIEQ4. Workshops will also play an important role in developing our answers to RIEQ3 and RIEQ4. The workshop organised in Phase 3 of our evaluation will enable us to bring together and test our analysis of the programme with key stakeholders. Similarly, the workshops organised in Phase 5 of the evaluation will fill in any remaining gaps in our analysis by collecting the perceptions of key stakeholders from TPI, POID and the thematic research centres of the value added by different aspects of the programme relative to the baseline assessment from this phase of the evaluation (Chapter 5).

4.3.2. Policy

EQs in this theme correspond to the output and outcomes section of the ToC under the cross-cutting 'policy' theme shown in Figure 8.

Figure 8: Policy cross-section of the ToC



Broadly, these EQs aim to determine the impact of the PIP on policy and policymaking in UK government departments, regional and devolved administrations, and international policy communities. In this evaluation, we are as interested in understanding impacts on national policy as much as at the regional level, including local enterprise partnerships (LEPs) and mayoral combined authorities (MCAs). Table 4 shows the policy impact evaluation framework, detailing the relevant EQs, methods and indicators, as well as their alignment to the ToC and the PIP and SPF objectives.

Table 4: Policy impact evaluation framework

Evaluation question	Indicators	Methods	Relevant ToC component	Relevant SPF and programme objective
<p><i>PIEQ1. To what extent has the programme delivered high-quality, relevant and actionable policy recommendations and solutions around productivity?</i></p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders on the quality and relevance of policy recommendations and solutions around productivity • Number of citations of PIP-funded research in relevant policy documents (e.g., budgets, spending reviews, growth strategies) • Programme quarterly reporting on policy impacts 	<p>Key informant interviews</p> <p>Scientometric analysis</p> <p>Analysis of Researchfish data</p> <p>Workshop with key PIP stakeholders</p>	<p>Outputs</p> <p>Policy recommendations at local and national levels</p> <p>Targeted resources such as briefs and commissioned reports</p>	<p>SPF objective</p> <p>Ensure that UKRI's investments link up effectively with cross-departmental research and innovation priorities and opportunities</p> <ul style="list-style-type: none"> • <p>Programme objective</p> <p>To establish and operate a world-leading programme providing new, independent, robust, trusted and more accessible data and research evidence of the highest quality from across the social sciences to underpin policies and practices that will deliver inclusive productivity in the UK</p>
<p><i>PIEQ2. Has the PIP had an enduring impact on how productivity is understood and integrated into practice by policymakers?</i></p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders (particularly policymakers) on how understanding of productivity has changed over time for policymakers • Mentions of programme and institutions in the House of Commons and the House of Lords • Examples of change in understanding and discourse around productivity as a result of PIP 	<p>Key informant interviews</p> <p>Review of Hansard</p> <p>Workshop with key PIP stakeholders</p> <p>Case studies</p>	<p>Outcomes</p> <p>Increased capacity of policymakers to engage with research</p> <p>Improvement in narrative and culture around productivity</p>	

<p><i>PIEQ3. To what extent and how has the PIP had an enduring impact on the capacity and capability of policymakers to engage with productivity research? And conversely, how has the PIP impacted researchers' capacity to produce policy-relevant research?</i></p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders of the PIP's impact on the capacity and capability of policymakers to engage with productivity research • Perceptions of key stakeholders of the PIP's impact on the capacity of researchers to produce policy-relevant research • Examples of use of PIP research and outputs in policymaking 	<p>Key informant interviews</p> <p>Workshop with key PIP stakeholders</p> <p>Case studies</p>	<p>Outputs Targeted resources such as briefs and commissioned reports</p> <p>Outcomes Increased capacity of policymakers to engage with research</p> <p>Networks maintained and grown over time</p> <p>Impacts Recommendations taken up by local and national policymakers</p>	
<p><i>PIEQ4. What impact has the programme had on policy across UK government departments, devolved nations and local regions, and the international policy community? How sustainable are these impacts?</i></p>	<ul style="list-style-type: none"> • Perceptions of key stakeholders in UK government departments, devolved nations and local regions of the PIP's impact on policy across the UK • Examples of and numbers of different types of policy engagement • Examples of policy changes or new policies influenced by PIP 	<p>Key informant interviews</p> <p>Workshop with key PIP stakeholders</p> <p>Case studies</p> <p>Researchfish data</p>	<p>Outputs Policy recommendations at local and national levels</p> <p>Impacts Recommendations taken up by local and national policymakers</p> <p>Evidence-based policy decision making supporting productivity improvements across contexts and regions</p>	

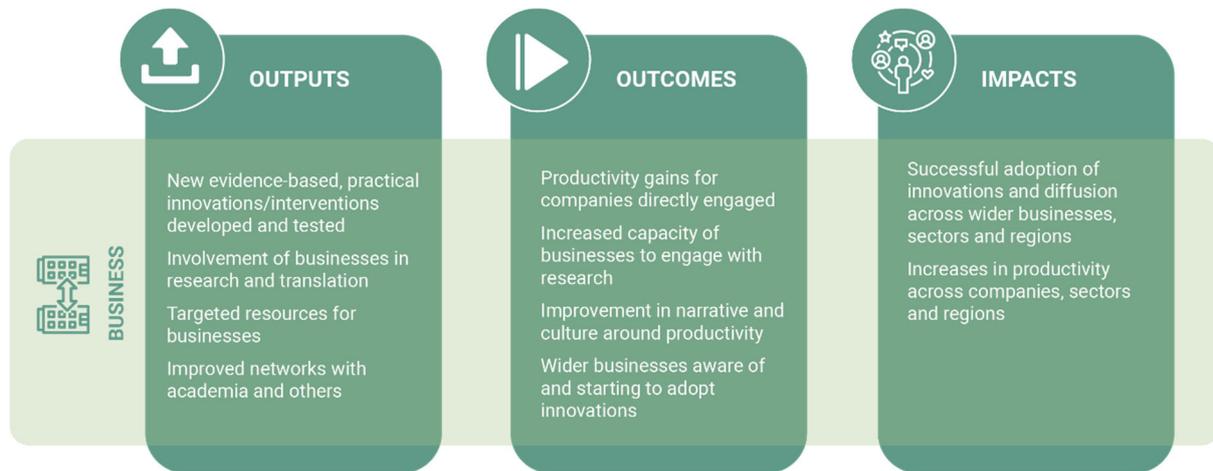
PIEQ1 and PIEQ2 concern the impact of the PIP on the quality of the productivity policy debate, asking to what extent it has created novel policy recommendations (PIEQ1) and how policymakers' understanding of productivity concerns has improved, if at all, through engagement with the programme (PIEQ2). Relatedly, PIEQ3 asks whether the programme has increased the capability of both parties, researchers and policymakers to produce and receive policy recommendations respectively. Finally, bringing these diverse inputs together, PIEQ4 asks the overall impact of the programme on productivity policy changes within UK government departments, devolved nations and local regions, as well as the international policy community. While understanding the regional impacts of the programme is a central focus of the evaluation, we are conscious that different parts of the UK face distinct economic and political challenges and, as such, programme outputs will not be evenly transferrable across the piece. Simply, we do not expect to see equal uptake of research across different regions of the UK, but we will explore how and why this is the case in the process evaluation.

To gather sufficient data for answering these questions, we rely primarily on qualitative methods, though we also include some quantitative measures where relevant and appropriate. To determine the number of citations of PIP research in relevant policy documents, we will conduct scientometric analysis and analysis of relevant data from investments' reporting on their impact as well as Researchfish data, particularly information from the section 'Influence on Policy'. This quantitative data will be particularly important for addressing PIEQ1, focused on the quality of policy relevant research outputs produced by the programme. Qualitative interviews and workshops will inform all EQs, but particularly PIEQs 2–4, and help us to understand policymakers' views on the impact of the PIP. Speaking to a wide range of stakeholders will enable us to avoid potential bias and ensure that we collect representative views of the PIP's policy impact. We will triangulate Researchfish data as part of this so as to target the relevant policy stakeholders and reach those who have directly engaged with the PIP, while also looking at those not directly involved in the programme to understand an outsider's perspective. Finally, and perhaps most importantly, case studies completed in the Phase 5 will allow us to understand concrete policy impacts/changes made as a result of the programme. Again, we will use Researchfish to select relevant policy impacts as the basis for case studies.

4.3.3. Business

EQs in this theme correspond to the output and outcomes section of the ToC under the cross-cutting 'business' theme shown in Figure 9 below.

Figure 9: Business cross section of the ToC



Broadly, these EQs aim to determine the impact of the PIP on businesses and business leaders in the UK across sectors and regions. Table 5 shows the business impact evaluation framework, detailing the relevant EQs, methods and indicators, as well as their alignment to the ToC and the PIP and SPF objectives.

Table 5: Evaluation questions for impact evaluation of business strand

Evaluation question	Indicators	Methods	Relevant ToC component	Relevant SPF and programme objective
<p><i>BIEQ1. How has the PIP created new structures and opportunities for productivity researchers to increase engagement with businesses and other industry stakeholders, and how enduring are these?</i></p>	<ul style="list-style-type: none"> • Number of PIP researchers engaging directly with industry (including secondments) • Number of businesses that have engaged directly with the PIP • Number and profile of PIP events attended by business representatives • Number and profile of formal/defined networks created through the PIP • Social media engagement with PIP research outputs directly relevant to businesses • Number and profile of formal/defined partnerships with external organisations (e.g. Be The Business) 	<p>Analysis of PIP monthly and annual reports, and management information</p>	<p>Outputs Involvement of businesses in research and translation Improved networks with academia and others</p> <p>Targeted resources for business</p>	<p>SPF objective Drive an increase in MIDRI</p> <p>Programme objectives To forge mutual, lasting engagement between the UK productivity-related research community and policymakers, practitioners and business</p> <p>Increased capability of social scientists working directly with business</p> <p>Increased capability of business and policy working with the research base</p>
	<ul style="list-style-type: none"> • Number of PIP research outputs involving direct collaboration with business (e.g. data provision, consultation, randomised controlled trial participation) 	<p>Investment reporting, including Researchfish data</p>		
	<ul style="list-style-type: none"> • For businesses who engage with the PIP, qualitative assessment of the quality, novelty and utility of the engagements • For PIP researchers who engage with businesses, qualitative assessment of quality, novelty and utility of engagements 	<p>Qualitative assessment through key informant interviews and case studies</p>	<p>Outputs Involvement of businesses in research and translation Improved (business) networks with academia and others</p> <p>Outcomes Increased capacity of business to engage with research</p>	

			Research conducted is relevant to needs of businesses and policymakers	
<i>BIEQ2. Has the PIP identified new and feasible interventions that business leaders or industry bodies could take to improve productivity?</i>	<ul style="list-style-type: none"> • Number of pilot interventions involving businesses • Number of research outputs involving recommendations for industry • Perceived novelty/value add of recommendations among business community • Examples of interventions implemented as a result of PIP 	<p>Analysis of PIP monthly and annual reports, and management information</p> <p>Researchfish data</p> <p>Key informant interviews and case studies</p>	<p>Outputs New evidence-based, practical innovations/interventions developed and tested</p>	<p>SPF objective Ensure that UKRI’s investments link up effectively with cross-departmental research and innovation priorities and opportunities</p> <p>Programme objective To develop solutions and interventions for improving productivity based on high-quality evidence, that can inform policy and be embedded within organisations</p>
<i>BIEQ3. Has the PIP had an enduring impact on how productivity is understood by business leaders?</i>	<ul style="list-style-type: none"> • Increase/changes in business understanding of productivity among businesses directly engaged with the programme and business organisations • Extent to which external organisations and partners (e.g. CBI, Be The Business, participants in RPFs) are informed by engagement with PIP • Social media engagement with PIP outputs by business stakeholders (e.g. number of followers on key platforms and evidence of engagement such as sharing and responding to content) • Perceptions of researchers and business leaders engaged by PIP regarding understanding of productivity • 	<p>Analysis of PIP monthly and annual reports, and management information</p> <p>Key informant interviews and case studies and/or small-scale survey</p>	<p>Outcomes Improvement in narrative and culture around productivity</p>	<p>Programme objectives Increased capability of business and policy working with the research base</p> <p>To improve the systematic and sustained generation and use of evidence and the capability to embed research within policy and practice across regions and sectors to improve UK productivity</p>

<p><i>BIEQ4. To what extent has the PIP led to changes in business practices and decisions (e.g. investment in technology, workforce training, etc.), and what has the effect of these changes been on productivity?</i></p>	<ul style="list-style-type: none"> • Measured or reported changes in practices or investment decisions for businesses directly engaged with the programme or its outputs • Measured or reported changes in productivity for businesses directly engaged with the programme or its outputs • Industry stakeholder perceptions of the extent of wider diffusion of PIP insights • Examples of changes in business practices and decisions and description of their effects 	<p>Key informant interviews and case studies</p>	<p>Outputs New evidence-based, practical innovations/interventions developed and tested</p> <p>Outcomes Productivity gains for companies directly engaged</p> <p>Wider business awareness and adoption of innovations</p>	<p>Programme objective To develop solutions and interventions for improving productivity based on high-quality evidence that can inform policy and be embedded within organisations</p>
<p><i>BIEQ5. What impact has the programme had on business across the UK, including devolved nations and local regions?</i></p>	<ul style="list-style-type: none"> • Synthesis of indicators considered under all business indicators, with focus where possible on distributional profile (e.g. geographic reach, profile of businesses impacted and engaged) 			<p>Programme objective To improve the systematic and sustained generation and use of evidence and the capability to embed research within policy and practice across regions and sectors to improve UK productivity</p>

Across all research questions, key informant interviews with programme stakeholders, businesses and other industry stakeholders will be used to assess several of the relevant indicators. Other industry stakeholders may include, among others: national cross-industry business organisations such as the CBI or the Federation of Small Businesses (FSB); organisations representing businesses in a particular industry, such as Make UK, the UK Manufacturers' organisation or techUK; and organisations representing businesses in a particular location, such as local Chambers of Commerce.

Questions BIEQ1–BIEQ4 will also involve reviewing PIP documents and management information. This will include information on the number of businesses conferences organised by the PIP, number of attendees to the conferences, number of members of the RPFs and volume of activities of these forums. Where the engagement results in specific research outputs, this will be recorded through Researchfish data. To assess the quality of engagement, researchers and business stakeholders that have taken part in PIP activities will be asked to what extent they or others have benefitted from these activities or expect benefits from these activities to materialise in the future. Relevant benefits for businesses will include improved networks and increased capacity of businesses to identify, understand and use relevant productivity research (whether produced by PIP researchers directly or by others). Relevant benefits for researchers will include their improved ability to produce research relevant to the needs of businesses.

BIEQ2 concerns the extent to which the programme has identified new interventions that business leaders or industry bodies could take to improve productivity. As for BIEQ1, the quantity of output will be assessed through review of PIP documents and management information and using Researchfish data. The quality and novelty of the outputs will be assessed qualitatively through key informant interviews and case studies to understand whether the interventions identified are perceived to be value adding relative to a counterfactual where the programme did not exist. For this EQ, 'case studies' indicates focused analysis of specific interventions identified by the PIP, including whether they have been taken up by business leaders or industry bodies and investigating the effects of their take-up.

BIEQ3 asks whether the programme has led to a change in business leaders' understanding of productivity. This will be assessed by identifying and interviewing business leaders who have engaged with the PIP. This will include depth interviews and might include collecting further views through a small-scale survey of business leaders. A survey will be appropriate and feasible within the impact evaluation if: 1) the scale of engagement undertaken by the PIP (BIEQ1 and BIEQ2) is sufficiently large; and 2) if the PIP has recorded contact details of business stakeholders it has engaged with, in a way that can be shared with the impact evaluation team.

BIEQ4 asks whether the programme has led to changes in business practices and decisions, and whether such changes have had an effect on productivity. Answering this question will involve investigating changes among businesses that have engaged directly with the programme, and also understanding whether PIP insights have led to any changes in the wider population of businesses beyond those that have engaged directly. If any changes have been made, the impact evaluation will need to consider the effect of these changes on businesses' productivity. This can be challenging as there are many drivers of the productivity of a business and assessing the impact of PIP activities would require constructing a credible counterfactual. At present, we expect to answer this EQ through qualitative analysis: key informant interviews and/or case studies of businesses that have engaged with the programme with the counterfactual assessed based on

historical business performance and self-assessed views of business participants. However, it is possible that the scale and nature of PIP engagement with businesses will evolve in a way that would make it amenable to an econometric analysis of its impact with counterfactuals constructed from a matched control group from the wider business population. We will revisit this at the beginning of the impact evaluation phase, as discussed in more detail in Section 4.4.

BIEQ5 asks what impact the PIP has had across the UK, including devolved nations and local regions. This will be assessed through analysis of the indicators listed under previous EQs; for example, when assessing the quantity of engagement between the PIP and business leaders under BIEQ1, assessing to what extent: 1) the businesses engaged are based in and are active across different regions of the UK; and 2) engagement events such as conferences and roundtables have had a specific local focus and/or (if physical rather than virtual) have taken place across different regions of the UK.

4.3.1. Value for money

The final EQ asks: “*To what extent does the PIP deliver value for money?*”. Answering this question would ideally involve quantifying and monetising all the benefits of the programme and comparing them with the cost of delivering the PIP. In practice, as described in the previous sections of this report, many of the impacts of the PIP will be assessed qualitatively. Therefore, a fully comprehensive cost-benefit analysis that includes all benefits from the PIP is unlikely to be feasible and would not be proportionate. However, it will nevertheless be possible to conduct analysis to assess the Value for Money (VfM) of the PIP. The objective of this analysis will not be to calculate an overall benefit-cost ratio for the programme, but to assess whether there is evidence that the benefits of the programme are greater than the costs. This analysis will attempt to quantify in monetary terms at least some of the benefits of the programme that have materialised or are expected in the near future. It will involve a combination of two types of analysis on benefits, described below, combined with information on the costs of delivering the PIP:

1. Quantification of **achieved or expected long-term outcomes of the PIP in monetary terms**. This could result from:
 - a. Evidence on monetary benefits of the programme assessed under previous EQs against the relevant subset of costs of the programme. For example, this could be evidence on the impact of the PIP on the GVA generated by businesses directly engaged with the programme.
 - b. Translating impacts from previous EQs into monetary terms through evidence from the economic literature. For example, this could involve estimating the monetary value of an increase in innovation investment identified under BIEQ4. This could be done by multiplying the change in investment attributed to the PIP by appropriate coefficients that estimate the social return on investment in innovation (Hall, Mairesse & Mohnen 2010).
2. Assessment of likely magnitude of impacts through **case studies of key changes linked to the PIP**. For example, this could focus on public policy changes that have been influenced by PIP research and engagement with policymakers and businesses.

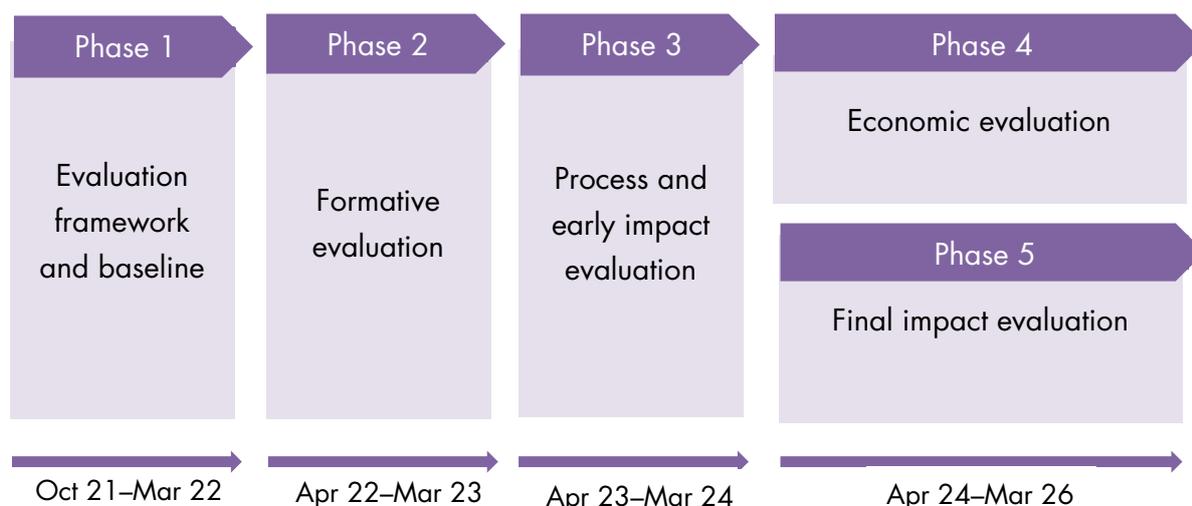
Any quantified benefits will be compared to the cost of delivering the programme. To the extent that the benefits of the programme assessed under either Analysis 1 or 2 above result from specific aspects of the programme, they should be compared against the specific relevant costs (including as appropriate a portion of total overhead costs for the programme). The net present value of benefits will be computed using appropriate discount rates. To avoid overestimating the VfM of the programme, it will be important to be clear about whether any of the monetised benefits can confidently and robustly be attributed, partly or in total, to the programme.

To further illustrate the approach to Analysis 2, consider the case of a policy change that has been influenced by the PIP. This analysis would aim to understand at a high level how the achieved or potential benefits of the policy change compare to the costs of delivering the programme. It is unlikely that a major new policy (comparable, for example in other policy areas, to the introduction of the UK minimum wage) could be entirely attributed to the activities of the PIP, nor would it be appropriate to try and establish what proportion of the benefits of such a policy could be attributed to the PIP. However, if it was assessed that the programme had a substantial influence into the policy, and if that the policy's benefits far outweigh the cost of the programme, this would be evidence that it has delivered VfM for the UK taxpayer. Findings could be phrased, for example, as *'If this policy changes achieves its intended benefits, this could generate around £Xm in economic benefits to the UK. This is Y times the total investment into the PIP. Therefore, even if only Z per cent of the £Xm benefits is attributable to the PIP, this would suggest that the benefits of the programme to the UK exceed the investment into the programme.'* The timing of changes will influence what evidence can be collected as part of the impact evaluation of the programme: for a policy that has recently been implemented, there would be no evidence yet at the time of the evaluation on its actual impact, and the evaluation would need to consider its expected economic and social impact based on available evidence (including any formal impact assessments). In this case it could also be possible to assess the magnitude of the policy change in terms of government expenditure committed to the policy, if any, and magnitude of economic activity affected (number of people, number of organisations, GVA produced by relevant organisations/industries/regions, and other relevant metrics, for example amount of investment in innovation potentially affected by the policy); all else equal, a small positive influence of the programme on a 'larger' policy change could have a larger impact than influence on a 'smaller' policy change.

4.4. How we will implement the evaluation

The evaluation is structured into five phases as illustrated in Figure 10 below. In the first phase of the evaluation, we have developed the evaluation framework and baseline as detailed in this report. In the following sections we set out the focus and approach to the remaining four evaluation phases. Note that Phases 4 and 5 will run in parallel over the final two years of the evaluation as specified in Figure 10. Although we set out areas of focus for each phase of the evaluation below, there will inevitably be some overlap. In each phase we will look to build on the findings of prior phases and further explore any key themes and issues emerging. For example, we anticipate producing recommendations at the end of Phases 2 and 3 for the future management of the programme. We intend to revisit any such recommendations later in the evaluation to explore the extent to which they have been implemented and why.

Figure 10: Structure of the evaluation



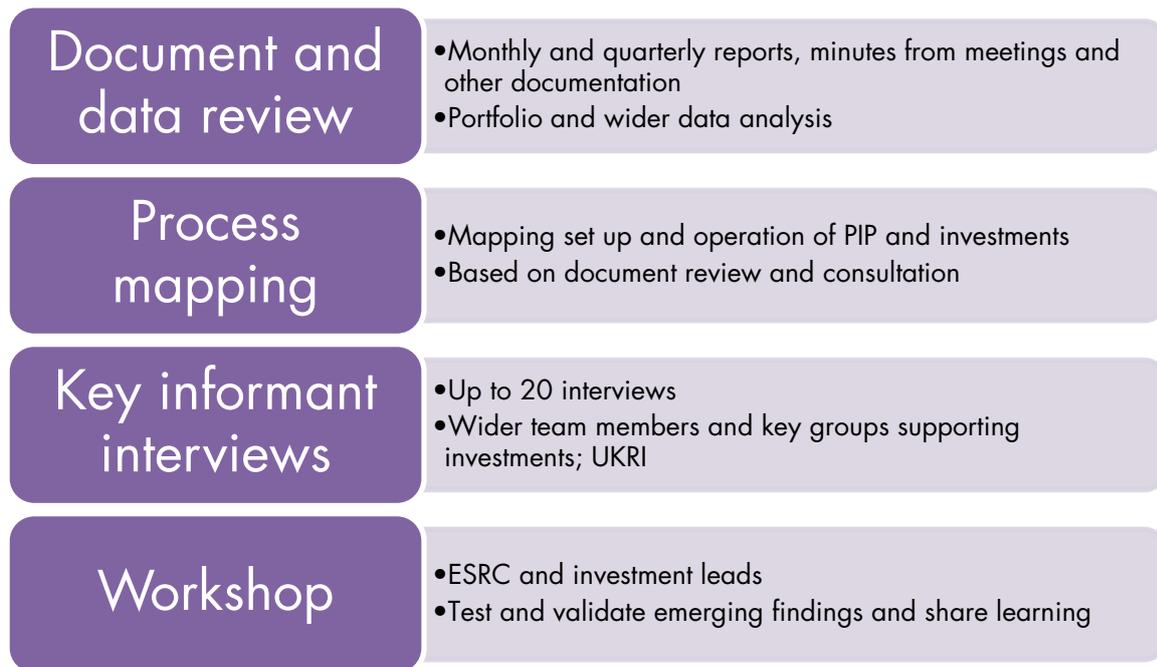
4.4.1. Formative evaluation

The aim of this phase of the evaluation is to establish whether operational processes are resulting in effective delivery and performance of the programme and identify areas for improvement. To achieve this, the evaluation will focus on assessing the effectiveness of processes at the investment level, reviewing the alignment with ESRC priorities and aims at both the programme and fund level. This stage of the evaluation will assess how well initiatives are involving stakeholders and uncover how mechanisms for co-creation have been translated from vision to practice, processes and reach. It will include assessment of how considerations with regards to EDI, environmental sustainability and good people management are embedded in investment level processes. As such, this stage of the evaluation will focus primarily on addressing: PEQ1, PEQ2, PEQ4, PEQ5, PEQ6 and PEQ8 as follows:

- PEQ1. To what extent, and how effectively, are the investments coordinated and together amount to a coherent programme?
- PEQ2. How has the design, commissioning and delivery of the PIP identified, addressed and engaged with the needs of policymakers, businesses, researchers and wider academic stakeholders, and workers and worker representatives, and what has this meant for ongoing programme design and delivery?
- PEQ4. How well has the programme adjusted and adapted appropriately to a changing landscape (e.g., COVID-19, net-zero transition)?
- PEQ5. How have ESRC, TPI, POID and thematic investment management governance systems supported and enabled the timely delivery of research, engagement and training activities?
- PEQ6. How has the programme used monitoring, evaluation and learning to drive continuous improvements in planning and delivery?
- PEQ8. To what extent has the programme demonstrated a commitment to equality, diversity and inclusion, environmental sustainability, and good people management practices, across its approach to achieving business, policy and academic impact?

In terms of the ToC, this phase of the evaluation will focus on inputs and activities. The methods used to deliver the formative evaluation are illustrated in Figure 11 and summarised below. We anticipate we will primarily focus on TPI and POID within this phase of the evaluation given the thematic investments are at a nascent stage. However, we will include and review any data and documentation available on the thematic investments and map out the process involved in their selection and award. We will also start to engage these award holders with the evaluation during this phase to enable better involvement in the evaluation from Phase 3 onwards.

Figure 11: Phase 2 methods



Document and data review

We will conduct a review of documents and data at the investment level. This will include analysis of monthly progress reports, annual reports, minutes from panel meetings and relevant meeting minutes from meetings with ESRC, business and policy stakeholder groups, mapping findings against the EQs above. We will also conduct a review of data on applicants and award holders at the overall programme and also at the investment level (reflecting, for example, internal awards within TPI) to look the diversity and reach of the applicant and award holder pool on a range of characteristics. We will also look at the composition of relevant groups such as the RPFs.

Process mapping

We will conduct a process mapping exercise to support understanding on PIP processes and how they are working in practice. Building on evidence from the document review, supplemented by consultations with the investments and ESRC, and up to three interviews with wider UKRI stakeholders to increase understanding of processes at the programme level, we will develop maps setting out processes involved in the set-up and the day-to-day operation of PIP and its investments.

Key informant interviews

We will conduct up to 20 interviews to understand experiences with a particular focus on how processes contribute to delivery of the investments, the programme more generally and what reach this results in. We

will consult with ESRC and the investments to identify the best individuals to speak to and how we should engage them to ensure useful input to the evaluation while minimising burden on participants, particularly wider stakeholders. Table 6 provides an illustrative picture of the likely interview candidates. Final names are to be agreed with ESRC and the investments at the start of this phase of the evaluation.

Table 6: Suggested programme of interviews for Phase 2

Stakeholder group	Indicative number of interviews
Wider members of POID and TPI research team (beyond investment leads)	7-10
Representatives from TPI RPFs, Productivity Commission and POID Advisory Committee	4-6
Wider UKRI stakeholders (e.g. SPF leads)	1-3
Initial consultations with thematic investments	1-2 group discussions across the thematic investments

Workshop with key PIP stakeholders

We will conduct a workshop with key PIP stakeholders to validate findings and discuss our analysis. A key aim of this workshop is to identify potential ways forward to address emerging issues and build on good practice in the PIP. The workshop will also help identify key lines of inquiry and evidence gaps to inform the following phases. Participants in the workshop should include leads of TPI, the POID and, where possible, the other investments, as well as ESRC programme management leads.

Analysis and synthesis

We will bring together the evidence across data sources, mapping data against the EQs and the ToC and using CA to explore the extent to which the evidence supports the ToC contribution narrative, alternative possible explanations and data gaps to address in later stages of the evaluation. The process will consist of data coding and triangulation, thematic synthesis and internal workshops. Findings will be written up as a concise report with methodological detail and data provided as annexes.

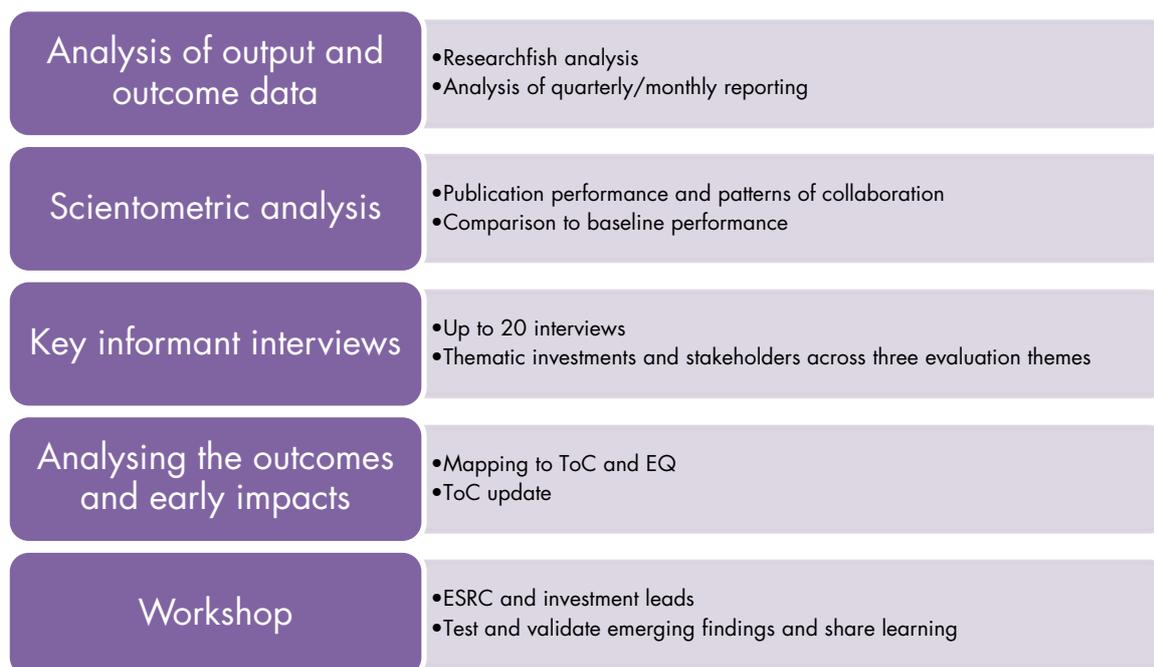
4.4.2. Process and early impact evaluation

The aim of this phase of the evaluation is to provide an early assessment of how the PIP is performing and whether it is on track to deliver anticipated impacts. We will explore the effectiveness of the programme, of the ESRC’s management and governance of the PIP, and how processes at the programme and investment level link to achieving programme aims. At this point we will move beyond the assessment of programme operation conducted in Phase 2 to produce a more detailed analysis of how those processes are translating into intended outputs and outcomes. As such, we move beyond the inputs and activities in the ToC to exploring the outputs and early outcomes and the extent to which the assumptions necessary for these to occur hold true. In terms of the evaluation framework, this phase of the evaluation will focus on the remaining PEQs (PEQ3 and PEQ7) and making an initial assessment of progress regarding a subset of the impact EQs, namely RIEQ1, RIEQ2, RIEQ4, RIEQ5, PIEQ1, PIEQ2, PIEQ3, BIEQ1, BIEQ2 and BIEQ3, as follows:

- PEQ3. How effectively has the PIP mobilised existing multi- and interdisciplinary knowledge and the wider UK and international research community?
- PEQ7. How effectively has the programme built skills and capacity across different stakeholder groups?
- RIEQ1. To what extent has the programme delivered a step change in the quality, international recognition and multidisciplinary of UK productivity research?
- RIEQ2. Has the PIP advanced the evidence base relating to UK and regional productivity, particularly in relation to finding practical solutions to the UK's productivity challenge?
- RIEQ4. To what extent has the PIP linked up effectively with wider research and innovation priorities and opportunities?
- RIEQ5. What has been the impact of the PIP on academic capacities and capabilities for productivity research? How enduring are these improvements?
- PIEQ1. To what extent has the programme delivered high-quality, relevant and actionable policy recommendations around productivity?
- PIEQ2. Has the PIP had an impact on how productivity is understood and integrated into practice by policymakers?
- PIEQ3. To what extent and how has the PIP had an enduring impact on the capacity and capability of policymakers to engage with productivity research? And conversely, how has the PIP impacted researchers' capacity to produce policy-relevant research?
- BIEQ1. How has the PIP created new structures and opportunities for productivity researchers to engage with businesses and other industry stakeholders, and how enduring are these?
- BIEQ2. Has the PIP identified new interventions that business leaders or industry bodies could take to improve productivity?
- BIEQ3. Has the PIP had an impact on how productivity is understood by business leaders?

We will also start to engage more fully with the thematic investments at this stage and look to supplement the information collected in Phase 2 to ensure we have a full understanding of the PEQs addressed there covering the programme as a whole. We will also conduct a review and, if necessary, refresh of the ToC at this stage, taking into account both emerging findings and information on the nature and focus of the thematic investments. The methods used to deliver the process and early impact evaluation, illustrated in Figure 12, complement those used in the formative evaluation and are intended to build on that evidence. The methods are set out in more detail in the sections below.

Figure 12: Phase 3 methods



Analysis of output and outcome data

We will conduct an analysis of evidence collected regarding the outputs and outcomes of the programme. We anticipate the primary source for this data will be Researchfish, but we will also review evidence captured through other reporting mechanisms such as quarterly and monthly reporting from the investments.

Scientometric analysis

We will conduct a detailed scientometric analysis of the publication outputs of the programme. This will cover publication performance and use (raw and field normalised citations, citations from policy documents and patents, altmetrics), patterns of collaboration, industry collaboration and new collaborations (publication histories, author affiliations, Researchfish data). Awards will be matched in Dimensions based on award numbers supplemented by publication lists collated by the investments, for example from monthly and quarterly reporting. We will also compare performance to baseline performance of award holders prior to receiving PIP funding, as well as to UK and international averages.

Key informant interviews

To capture information regarding how processes are linked to unidentified outcomes and early impacts, we will conduct a programme of interviews with key programme stakeholders. The aim of the programme of interviews will be to assess what is working (or not working), how and why, and test the intervention logic set out in the ToC. We will conduct up to 20 interviews to understand experiences with a particular focus on how processes at the programme and investment levels contribute to delivery of the programme as well as its outcomes and expected impacts. A subset of these interviews will be focused specifically on understanding the focus and intended intervention logic for the thematic investments. Interviewees would be agreed with ESRC and the investments at the start of this phase, but we expect interviewees to largely consist of wider stakeholders engaged with but external to the PIP, covering the knowledge, policy and

business domains, to allow us to explore external perspectives and experiences of the programme. Indicative numbers of stakeholders by stakeholder group are provided in Table 7. We will source potential interview candidates from the output and outcome reporting data and through consultation with the investments.

Table 7: Suggested programme of interviews for Phase 3

Stakeholder group	Indicative number of interviews
Thematic investment researchers	3–5
Knowledge strand: Collaborators and wider productivity researchers in the UK	4–6
Policy strand: Policymakers engaged with and audience for work of programme	4–6
Business strand: Business leaders and representatives engaged with and audience for work of programme	4–6

Analysing the outcomes and early impacts

Data collected in the formative (Phase 2) and the process/early impact evaluation will be mapped against the ToC and EQs and compared to the baseline as a counterfactual. At this stage, we will also conduct a review and, if needed, an update of the ToC reflecting the evidence collected so far and our consultations with the thematic investments.

Workshop with key PIP stakeholders

Finally, we will conduct a workshop with key PIP stakeholders (ESRC programme leadership and investment leads) to discuss our analysis and learnings for the programme. The workshop will also inform the approach to future phases (e.g. case study selection based on early impacts for Phase 5).

4.4.3. Economic evaluation

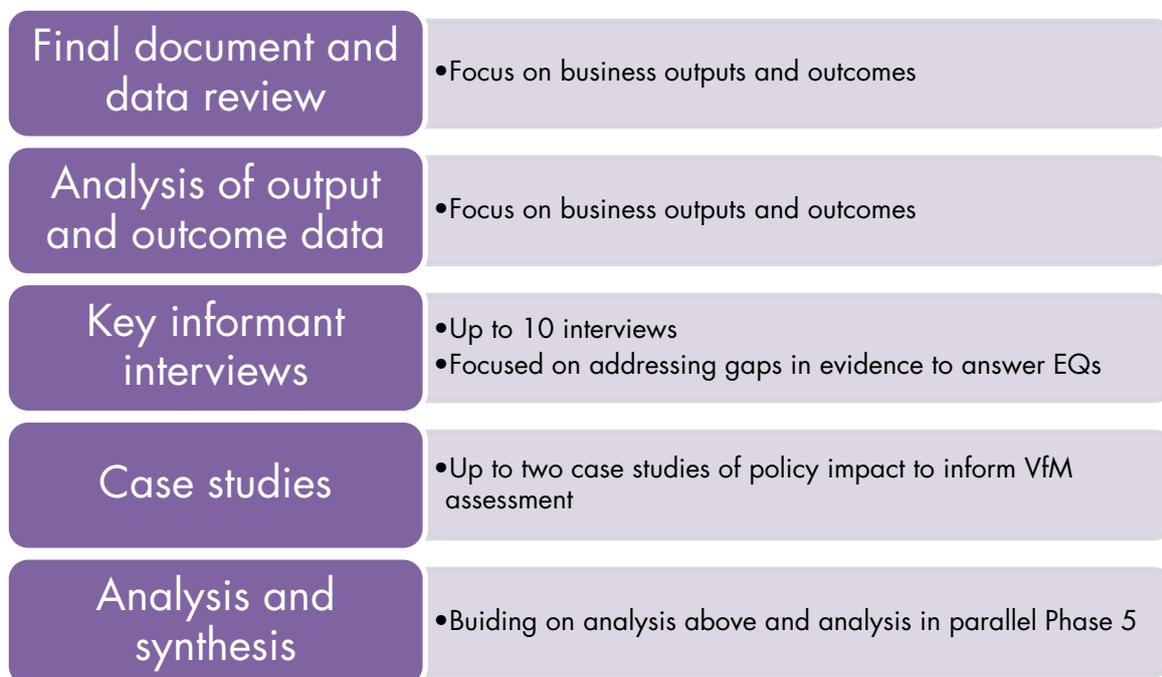
The aim of Phase 4 of the evaluation will be to assess the impacts of the programme on business and to assess the overall VfM of the programme. This phase will be run in parallel with Phase 5 (final impact evaluation) and integration between the two phases will be needed to inform the VfM assessment.

In terms of the evaluation framework, this phase of the evaluation will focus on the following EQs:

- BIEQ1. How has the PIP created new structures and opportunities for productivity researchers to engage with businesses and other industry stakeholders, and how enduring are these?
- BIEQ2. Has the PIP identified new interventions that business leaders or industry bodies could take to improve productivity?
- BIEQ3. Has the PIP had an impact on how productivity is understood by business leaders?
- BIEQ4. To what extent has the PIP led to changes in business practices and decisions (e.g. investment in technology, workforce training, etc.), and what has the effect of these changes been on productivity?

- BIEQ5. What impact has the programme had on business across the UK, including devolved nations and local regions?
- VFMQ1. To what extent does the PIP deliver value for money?

Figure 13: Phase 4 methods



Analysis of output and outcome data

We will conduct an analysis of evidence collected regarding the outputs and outcomes of the programme relating to the programme’s engagement with business. This will be based primarily on information and data provided by the programme on the quantity and nature of these engagements.

Key informant interviews

We will conduct interviews with selected businesses that have engaged with the programme and with stakeholders in key business organisations (e.g. CBI, Be The Business, Federation of Small Business) to test BIEQ1–BIEQ5. Interviews with stakeholders will focus on the impact of the programme on broad understanding in the business community of productivity and the reach of any interventions identified to improve productivity.

As in Phase 3 of the programme, interviewees would be agreed with ESRC and the investments at the start of this phase, but we expect interviewees to largely consist of wider stakeholders engaged with but external to the PIP.

Case studies

Up to two case studies will focus on activities of the programme that are particularly likely to have generated, or to generate in the future, a large impact that could be monetised as part of our VfM analysis. Because not all impacts of the programme can be directly monetised, focusing on two specific areas as part of the

analysis will complement analysis undertaken in other parts of the Phase 4 and 5 evaluations. For this component of our work, we expect to focus on cases of policy impact of the programme as: 1) assessing the contribution of the programme to actual or planned policy changes will be complex and require dedicated resource; and 2) any impacts on high-profile policies could potentially generate large benefits. Section 4.4.4 below provides further detail on our methodological approach to case studies.

Analysis and synthesis

For the VfM analysis, we will bring together evidence from several sources, including data on the costs of the programme, all quantified outcome indicators, and any evidence from case studies on impacts that are or could be quantified, with a particular focus on policy impacts as described above. While it may not be possible to quantify the economic benefits linked to all aspects of the programme (for example, the impact of changes in business understanding and perception of productivity), the aim of this analysis will be to understand whether, considering all outcomes of the programme in the round, the programme is likely to have delivered benefits that exceed its costs.

Alternative analysis:

The first task within this phase of the evaluation will be to review the activities, outputs and outcomes of the programme linked to its engagement with business, and what data has been collected, if any, on the number, identity and characteristics of businesses that have engaged directly with the programme. As discussed in Section 3.3.3, based on our current understanding of the programme, we expect a qualitative approach is best suited to answering all EQs relating to business outcomes (BIEQ1–BIEQ5). However, it is possible that the programme will have involved intensive engagement with a relatively large number of businesses (at least in the low hundreds) intended to lead to improvement in the performance of those businesses, which could be estimated using an econometric approach. In that case, the econometric evaluation would replace some of the activities described above. An econometric approach will be feasible under the following conditions:

- The programme has engaged with a sufficient number of businesses.
- The expected outcome of this engagement is a sufficiently large improvement in the businesses' performance as measured by turnover and/or employment or by the businesses' chance of survival.
- Data identifying the businesses supported (chiefly their Companies House Reference numbers) and the timing of support received (at least, which calendar or financial year this was provided in) has been collected by the programme and can be shared with the evaluation team.

The timing of support is such that outcomes can be observed in available data at the time of the evaluation. Assuming kick-off of Phase 4 in April 2024, available data on business outcomes, for example from the ONS's Business Structure Database (BSD), will be available up to the end of the 2022 financial year.

The exact number of businesses and size of expected outcomes required for the econometric evaluation to be feasible are interrelated – the larger the number of businesses, the more likely that a given effect size can be identified with econometric analysis; equally, if the expected effect size is larger, the econometric analysis could be feasible with a smaller number of businesses.

Further detail on this analysis is available in Annex G.

4.4.4. Final impact evaluation

The aim of Phase 5 is to assess the full range of impacts identified in the evaluation framework. We must caveat that exact timeframes for achievement of ultimate impacts are highly dependent on wider factors and the extent to which windows of opportunity become available. So, while over the timeframe of the evaluation (five years) we might expect to start seeing some of these ultimate impacts, it will likely be considerably longer before many of these can be realised in full. However, we do expect the programme's

intended outputs and outcomes to be tractable over the timeframe of the evaluation and provide a plausible pathway through which final impact can be reached. An important part of the final impact evaluation will be in capturing the full range of outputs and outcomes and re-assessing the feasibility of final impact pathways.

This phase will run in parallel to Phase 4 and will address all the impact EQs. The baseline will be used as a counterfactual to compare the impact of the PIP to the state previously, and methods used to support the economic evaluation (Phase 4) will also feed into the final evaluation report. The methods used for the final evaluation are set out in Figure 14 and are described in more detail below.

Figure 14: Phase 5 methods

Final document and data review	<ul style="list-style-type: none"> • New documents and data since Phase 3
Researchfish and scientometric analysis	<ul style="list-style-type: none"> • Update to include new outputs and add in thematic investments
Key informant interviews	<ul style="list-style-type: none"> • Up to 20 interviews • Focused on addressing gaps in evidence to answer EQs
Case studies	<ul style="list-style-type: none"> • Up to six Payback case studies • Diversity across activity and intended impacts of the portfolio
Workshops	<ul style="list-style-type: none"> • Three workshops – one each for TPI, POID and thematic investments • Range of stakeholders to explore impacts and address gaps in evidence
Analysis and synthesis	<ul style="list-style-type: none"> • Overall CA across all evidence collected and test ToC logic • Generate lessons learned for this and future investments

Final document and data review

This will cover new documents and data available since Phase 3 concluded, including analysis of progress reports and relevant meeting minutes for the thematic investments as well as additional documentation and evidence accrued over time for POID and TPI.

Researchfish and scientometric analysis

We will re-run our analysis of Researchfish and scientometric data at the programme and investment level. This analysis will complement the analysis in Phase 3 and will cover additional data, including data related to the thematic investments not included in Phase 3.

Key informant interviews

We will conduct up to 20 interviews with policy and business stakeholders focusing on specific EQs where we have identified the need for additional insights. In particular, we anticipate conducting a number of interviews for stakeholders of the thematic research centres to supplement existing evidence on their impact.

Case studies

The aim of the case studies is to understand how impacts have come about, and what were the barriers and enablers of the programme achieving these impacts. We will select up to six case studies based on our analysis of early impacts in Phase 3 and in consultation with ESRC. We aim to select a diversity of case studies to cover the range of different types of activity and intended impacts of the portfolio (e.g. spanning the different investments, covering impacts on policy and businesses, exploring key aspects of programme design such as co-creation with wider stakeholders, multi- and interdisciplinarity). The case studies will draw out the factors that have contributed to the PIP delivering its objectives. For example, to address the counterfactual of different funding models, we will consider how the decision to concentrate funding at TPI facilitated, or hindered, impacts. Case studies and key informant interviews will also be a source of evidence for the economic evaluation (Phase 4) since these phases will run in parallel. Case studies will be developed using the Payback Framework (see the box below), which provides a structured format to explore research and its impacts systematically with a particular focus on exploring reasons why particular outcomes were (or were not) achieved.

Payback Framework:

We propose to conduct case studies using the Payback Framework, one of the most widely used frameworks for assessing the impact of research. It was initially developed by the Health Economics Research Group at Brunel University (Buxton & Hanney 1996) to examine health services research, and has been subsequently developed in collaboration with RAND Europe and other groups for wider applications across a wide range of disciplines internationally (e.g. Hanney et al. 2006; Wooding et al. 2005; Levitt et al. 2010; Oortwijn et al. 2008; Nason et al. 2008; Kwan et al. 2007). The Payback Framework provides the underpinning structure of Researchfish and has been used in many contexts, but its primary application is as a structured format for the development of impact case studies. The framework typically takes an individual award as a unit of analysis and tracks in a systematic way the range and nature of impact achieved as well as the pathways through which those impacts are realised. It also expressly captures at each stage the contribution that the award made to progress relative to other factors (including other research projects and wider drivers), making it well aligned with a CA approach. The structured approach means cross-case analyses can easily be conducted and success factors (and common barriers) identified.

Stakeholder workshops

We will convene three workshops, one for the TPI, one for the POID and one for the thematic investments, to bring together stakeholders from academia, businesses and policy to give their perceptions on the value of the PIP against a baseline and generate additional qualitative data to fill in any remaining gaps in evidence. Since no baseline was included for the thematic investments, we will explore the change relative to a baseline as well as the impacts in this case.

Analysis and synthesis

As we assemble the range of evidence to support the final impact evaluation, we will triangulate sources to arrive at our overall CA. Where there is relatively little quantitative data, we will assess the consistency and strength of the views expressed across a range of stakeholders, assessing where conclusions are stronger or weaker. We will use this to test the intervention logic expressed in the ToC and explore the extent to which the programme has achieved, or achieved progress towards, its goals in context, as well as lessons learned for this and future investments.

5. Baselineing

5.1. Introduction

The aim of the baselining task is to set out the picture regarding knowledge, policy and business activity in relation to productivity prior to the launch of the PIP. The purpose of providing this baseline is to give a comparison point for our later analysis of the impact of the programme. In this chapter we set out the baseline picture in detail across our three evaluation themes: research, policy and business.

5.2. Research

This section provides an overview of the context at the baseline for the EQs related to knowledge. This context is relevant for the programme as a whole, but in particular for EQs concerning the impact of the programme on:

- The production of high-quality, internationally recognised multi- and interdisciplinary research and innovation (MIDRI) (RIEQ1).
- The evidence base relating to UK and regional productivity (RIEQ2).
- Academic capacities and capabilities for productivity research (RIEQ5).

The baseline context is particularly important for these outcomes compared to other outcomes that have by definition a ‘zero’ baseline – for example, perceptions of different groups on interventions developed by the programme or the extent to which the programme has linked up with wider R&I priorities. The insights here are derived mainly from targeted stakeholder interviews and initial desk research. Some quantitative evidence is provided through analysis of evidence from bibliometric databases and GtR, looking at the prior research landscape. More formal scientometric baselining will be conducted in Phase 2 of the evaluation; the approach to be taken for this analysis is set out in Annex H.

Each of the subsections below summarises a key insight gained from the research to date, as well as more detail on the specific pieces of evidence that support this.

5.2.1. The field of productivity research in the UK has widely been perceived as being of a high quality and international renown

Productivity research in the UK is considered as second only, perhaps, to the USA in terms of research quality and quantity (INT11). One example of this is the Centre for Economic Performance (CEP), which is widely recognised as a national standard bearer for the production of high-quality productivity-related

research and is at the forefront of international productivity research where its outputs have garnered considerable interest (Frontier Economics 2009, 26). The CEP has a significant international profile too, evidenced by the CEP's previous project partners who include, among others, the OECD, the European Bank of Reconstruction and Development (EBRD), the International Monetary Fund (IMF) and la Banque de France (Centre for Economic Performance 2021).

In addition, there were a number of leading UK-based academics working on different aspects of the productivity puzzle. Figures like Nick Bloom and John Van Reenen, currently at the University of Stanford and the LSE respectively, have produced some of the strongest research on the UK's productivity challenge, mostly around firm-level interventions and adoptions of technology (ESRC 2018a, para. 7). Others, such as Jonathan Haskel of Imperial College London and Professor Diane Coyle of the University of Cambridge have produced important work on the data challenges of productivity and its measurement, particularly in relation to impact of digitalisation on productivity and measuring the role of 'intangibles' (Imperial College London 2023; University of Cambridge 2023) Indeed, this work on measuring productivity and accounting for the role of the digitalisation is at the forefront of the field of UK productivity research at baseline, especially as previously the role of data, measurement and digitalisation were fields of study that had historically been under-researched (INT03; INT06). More recently, Professor Diane Coyle and a team researchers based at the University of Cambridge have been among the few productivity researchers to work across thematic silos through work on productivity and healthcare in the context of COVID-19 (Coyle, Dreesbeimdieck & Manley 2021). Another leading organisation in the field of productivity research has been the Bank of England (INT11), whose work has been headed by Andy Haldane, former Chief Economist. Haldane and the Bank's work has played an important role in raising the profile of productivity research among researchers and policymakers. Haldane and the BoE have produced a high volume of work on the regional dimensions of the UK's productivity challenge (Haldane 2018) as well as the UK's productivity more broadly (Haldane 2017). Dame Kate Barker is another example of a productivity-focused researcher who has worked closely with government to produce important work on industrial strategy, infrastructure and productivity (Centre for Science and Policy 2023). These academics and policymakers, based across a variety of institutions across the UK, have played an important role in boosting the UK's productivity research output and the international profile of its research in recent years. Indeed, one can see that the field of productivity research has seen a steady growth in recent years as measured by the number of productivity-related papers in the UK published on Scopus and WoS shown below in Figure 15 and Figure 16.⁴

⁴ Differences between WoS and Scopus can be accounted for by the different search functionalities of the two databases. While Scopus allows for a specific search of title, abstract and research key (TITLE -ABS-KEY), WoS only allows for a search of topic, which, in addition to TITLE-ABS-KEY, includes 'important terms not listed among the author keywords'. As a result of this, many more publications are selected.

Figure 15: Number of UK academic papers in WoS related to productivity over time

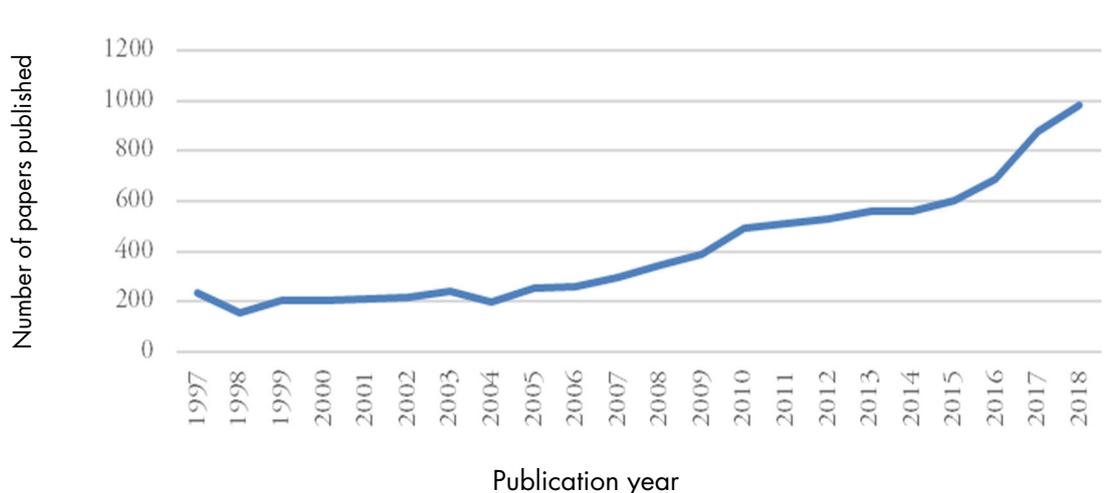
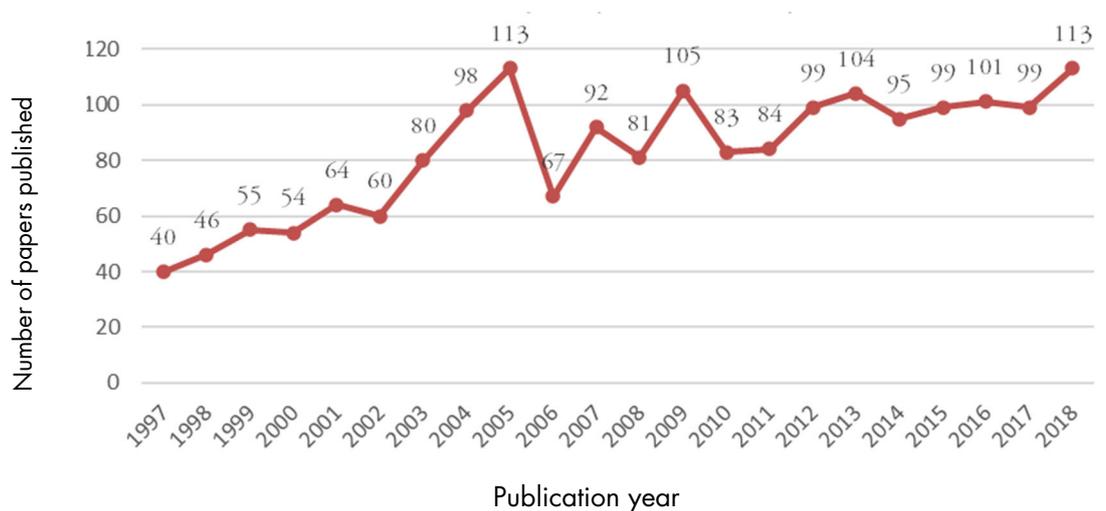


Figure 16: Number of UK academic papers in Scopus related to productivity over time



Looking in more detail at publications, we have also analysed a baseline set of publications for the investment. These are publications over the period 2014–2018 authored by researchers who were subsequently associated with TPI and/or POID. The analysis covers a total of 1,457 publications from 95 researchers associated with the two PIP investments. In this more detailed analysis of PIP baseline publications, we also find that high levels of citation suggesting (subject to the usual caveats of bibliometric analysis) a high level of research quality. The average field citation ratio (FCR)⁵ for these researchers – which is the number of citations per publication, normalised for the field and year of publication – was 6.97, approximately seven times the world average. Similarly, on average 20.9 per cent of the publications

⁵ FCR is an article-level metric calculated for all publications in Dimensions that are at least two years old by dividing the number of citations a paper has received by the average number received by documents published in the same year and in the same FOR category. For more on FCR and how it is calculated, see <https://dimensions.freshdesk.com/support/solutions/articles/23000018848-what-is-the-fcr-how-is-it-calculated->

produced by these authors were in the top 5 per cent of most highly cited articles for their field. These are extremely high levels of citation and provide further evidence to suggest that the quality of research being produced in the UK on productivity was very high. However, we also see comparably high levels of citation for wider publications associated with ESRC over the same period, and an even higher level of citation performance for a selected comparator set of productivity-related awards. This is summarised in Figure 17.

Figure 17: Baseline citation performance of portfolio and comparator groups

Investment	Average field citation ratio	Percentage of highly cited articles (top 5% for their field)
POID	7.3	20.2
TPI	6.9	21.8
Whole PIP portfolio	7.0	20.9
Comparator grants	8.6	29.1
ESRC	6.0	20.5

Looking at international engagement at baseline, we find that 36.7 per cent of baseline publications involved international collaboration and 75.2 per cent of publication received international citations. This is comparable to wider ESRC portfolio in terms of levels of international collaboration (36.1 per cent) but slightly lower than a comparator set of awards (50.9 per cent). However, level of international citation at baseline is low compared to wider ESRC awards over that period (91.1 per cent) and to the comparator group of awards (93.6 per cent).

5.2.2. Despite international renown and increasing academic output, there has been limited multi- and interdisciplinary research in the study of productivity

The discipline of economics has historically been the dominant discipline among researchers working on productivity and the issue **has historically been perceived as a standalone ‘economic’ problem** (INT05; INT03; INT10; INT13; ESRC 2018b, 1). As a result, understandings of the ‘social’ side of the productivity challenge was comparatively underdeveloped at baseline (INT06; INT09; INT13). There are some recent exceptions to this trend, with active interdisciplinary work being completed at institutes such as the CPE at Lancaster University, as well as the ESRC-funded PIN, which aimed to ‘develop new insights through an interdisciplinary, [...] lens’. Here, and in the broader field, interdisciplinary collaborations were primarily formed with economic geographers (INT13) and researchers working on management practices (INT10). Indeed, much of the strongest work devoted to the UK’s productivity challenge has centred on firm-level technology adoption and management practices (ESRC 2018a, para. 7).

In general, however, the ESRC’s productivity-related research portfolio from 2004 to 2018 has been focused on research associated with economics and employment (ESRC 2018b, 1). In general, the productivity conversation among researchers has been dominated by economists, as researchers from different disciplinary backgrounds have been confined to the margins to the debate. One interviewee said that

collaborations between researchers in a wide range of disciplines (such as physics, health and mental health) and data science would be a helpful addition to research into productivity, yet they have been extremely rare at baseline (INT15). To provide one example of this, social scientists working outside the discipline of economics may be engaging with issues that are highly relevant to productivity, such as workers' well-being or broader health concerns, but did not sit their research within a broader conversation about productivity (INT10).

It should also be noted that the **economic approaches that dominate productivity research have also been relatively narrow**, with most researchers belonging to mainstream, neoclassical schools of thought. Most economists have understood the UK's productivity challenge as a 'supply-side' problem where a deficit of human skills and capital, investment, competition, enterprise and innovation are the principal drivers (HM Treasury 2000, 32–3). This view stands in contrast to the view of a significant minority of researchers, including some heterodox economists (INT06), that the productivity puzzle is a 'demand-side' problem. According to this view, the UK's poor productivity performance can be explained by low aggregate demand in the economy (INT04; INT06). In general, heterodox economists did not engage in much productivity research at baseline (IN06).

Bibliometric analysis of the multi- and interdisciplinarity of research conducted between 2014 and 2018 by researchers subsequently involved in the PIP broadly aligns with this qualitative assessment, with economics clearly playing a key role, but the evidence also suggests that the level of multi- and interdisciplinarity was similar to typical ESRC-funded research over that period.

Looking at the publications produced, we find that 18.9 per cent of those produced by these authors have more than one field of research (FOR) associated with them, which is comparable to ESRC average for that period (18.8 per cent) and the comparator group (18.4 per cent). Similarly, we see that the mean number of FOR associated with each paper produced by this group of authors was 1.27, again similar to the ESRC average of 1.23 and the comparator group average of 1.22. The five most common FOR at baseline were, in order, Economics (502 publications); Commerce, Management, Tourism and Services (371 publications); Studies in Human Society (162 publications); Medical and Health Sciences (135 publications); and Psychology and Computing Sciences (85 publications). We also looked at the 'home disciplines' of authors – that is, the discipline(s) in which they most frequently publish. We find that 44.3 per cent of publications from these authors over the period 2014–2018 include authors from more than one home discipline, and that on average papers had authors from 1.69 different home disciplines. This is slightly higher than ESRC (34.5 per cent) and comparator group (39.5 per cent) averages, though the mean numbers of home disciplines for these groups was similar (1.64 in both cases). The most common home discipline for PIP researchers at baseline was Economics (47 researchers) followed by Commerce, Management, Tourism and Services (23 researchers); Studies in Human Society (10 researchers), and Medical and Health Sciences (8 researchers). All other disciplines had three or fewer researchers from within this group of subsequent PIP awards holders.

We can further look at the interdisciplinarity of the papers cited in the group of publications analysed. This gives us a picture of the range of disciplines the researchers are drawing on to inform their own work. On average, we find that publications by this group of authors over the period 2014–2018 reference research from 5.3 different FOR and that 32.3 per cent of the publications reference more than 5 different FOR. This is somewhat lower than for comparator groups. ESRC-related publications over that period referenced on average 6.0 different FOR and 46.8 per cent of ESRC publications reference more than 5 different FOR.

The comparator set of productivity awards reference on average 5.7 FOR and 43.9 per cent of those publications reference more than 5 FOR.

Interestingly, the fields referenced by researchers subsequently involved in the two investments, TPI and POID, differ slightly, perhaps reflecting the slightly different focus of the two investments. The top five FOR referenced at baseline by authors subsequently involved in TPI and POID are shown in Table 8.

Table 8: Top five fields of research referenced in baseline publications (publications between 2014 and 2018 authored by individuals now associated with TPI and POID)

TPI	POID
Commerce, Management, Tourism and Services (9,705 references)	Economics (7,451 references)
Economics (7,573 references)	Commerce, Management, Tourism and Services (6,282 references)
Studies in Human Society (3,103 references)	Medical and Health Sciences (2,109 references)
Psychology and Cognitive Sciences (3,012 references)	Studies in Human Society (1,703 references)
Medical and Health Sciences (1,701 references)	Psychology and Cognitive Sciences (1,277 references)

Similarly, we can also analyse the range of FOR citing the publications produced at baseline. This gives an indication of the range of disciplines that are drawing on and using the evidence produced by this group of researchers. We find that on average baseline publications are cited by 5.5 different FOR and 32.1 per cent of publications are cited by more than 5 FOR. Again, this is somewhat lower than comparator groups – particularly ESRC, where the average number of citing FOR is 6.8 and 53.4 per cent of publications cited more than 5 FOR. The difference is less pronounced for the comparator set of productivity-related awards, where the mean number of citing FOR is 5.2 and 35.0 per cent of publications are cited by more than 5 FOR.

Again, we see a slightly different picture regarding the specific FOR citing prior work by authors subsequently involved in the two investments, TPI and POID. The top five citing FOR at baseline for TPI and POID is shown in Table 9.

Table 9: Top five fields of research of publications which cite baseline publications (publications between 2014 and 2018 authored by individuals now associated with TPI and POID)

TPI	POID
Commerce, Management, Tourism and Services (10,189 citations)	Economics (5,794 citations)
Economics (9,093 citations)	Commerce, Management, Tourism and Services (5,401 citations)
Studies in Human Society (5,285 citations)	Studies in Human Society (1,763 citations)
Engineering (2,127 citations)	Medical and Health Sciences (1,656 citations)
Information and Computing Sciences (1,787 citations)	Engineering (811 citations)

5.2.3. Many interviewees said that linguistic and issues of perspective have been a significant barrier to MIDRI in productivity research

To a large extent, economists and social scientists lack a common language to talk about productivity-related issues (INT10). While economists are likely to engage with the term productivity in a narrower, economic sense, other social scientists have historically been influenced by the broader social connotations of the term, which, for example, see it in relation to debates over automation and employment (INT01). However, several baselining interviewees stressed that it is important to bear in mind that productivity is, fundamentally, an economic problem and that it is unsurprising (and perhaps desirable) that a large bulk of research be completed by traditional economists (INT06; INT11).

Perhaps related to the lack of MIDRI, **the field of productivity research was characterised by a high degree of fragmentation at baseline** (INT06). While there were collaborative groups of researchers closely engaged in the productivity debate, overall, such groups tended to be quite small and did not build bridges to other research areas (INT09). Fragmentation was not just apparent across disciplines as discussed above, but also among the economists working on productivity, few of whom have productivity as their primary field of research (INT09; ESRC 2018b, 1). This fragmentation has been apparent for some time pre-baseline and was part of the drive for creating the ESRC's PIN (INT06; TPI 2019, 11), which has played an important role in 'joining up' the productivity research agenda in the UK. However, despite the successes of previous ESRC investments like the PIN, which has, in part, successfully expanded the scope of conversations about productivity, the productivity research agenda remained fragmented at baseline (INT06). As a result of this fragmentation of productivity research, both within and between disciplines, issues such as the intersection of productivity concerns with environmental issues, the measurement of natural capital and quality of life, or health issues, such as the UK's mental health crisis, remains underexplored (INT11) Hence, the field of productivity research continues to lack the necessary quality, coordination and even scale despite its steady growth in recent years (The Productivity Institute 2019, 2; 11).

5.2.4. The baseline understanding of the nature of the productivity challenge was strong, but multiple competing explanations were apparent.

Challenges around fragmentation and MIDRI aside, **the nature of the UK's productivity challenge was well understood at baseline**. Researchers of almost all stripes could agree that the quality and quantity of factor inputs, levels of R&D, institutional and governance settings, skills, infrastructure, management practices, economic geography and knowledge diffusion were important drivers of productivity (McCann 2018b, 8). Likewise, productivity researchers also had a good understanding of longer-term drivers of the UK's flatlining productivity. However, the relative importance of the productivity challenge's different potential drivers, and how they fit together, remained underexplored. To quote one researcher, 'putting together the pieces of the productivity puzzle' was the primary challenge at baseline (van Ark 2021). Indeed, the limited understanding of the relative importance of, and interrelationship between, the different drivers of productivity was exacerbated by the fragmentation of the field of productivity research previously described.

Though a full and systematic review of the literature is outside of the scope of this report, we have considered existing summaries of the evidence and arguments on the causes behind the UK's productivity slowdown. In particular, we have considered the evidence reviews (McCann 2018a) conducted by the PIN and an

article published by the ONS that summarises the arguments surrounding the causes of the productivity puzzle.

The ONS sets out an overview of the arguments surrounding the potential causes of the productivity slowdown (ONS 2022b), which is summarised below. The ONS splits the potential causes into the following categories:

1. **Structural arguments:** Consisting of factors related to long-term, structural trends in the economy, for example the relative decline of North Sea gas and oil, an historically high-productivity industry.
2. **Labour and managerial arguments:** Including arguments suggesting a misallocation of labour across industries and studies suggesting the slowdown may be caused by weak management practices.
3. **Measurement arguments:** These suggest the slowdown may be a result of the way in which productivity is measured, for example productivity data not fully capturing the effects of rapid digitalisation.
4. **Capital arguments:** Arguments here include low investment, the rise of the internet creating duplication of inputs, such as firms having both a physical store and online store, and bank forbearance following the financial crisis supporting lower productivity firms.
5. **Innovation arguments:** This includes arguments suggesting a breakdown in the dispersion of best practice from firms at the frontier to those further away from it. This also includes suggestions that there has been a slowdown in generation of new ideas.
6. **Uncertainty arguments:** For example, uncertainty caused by technological change causing firms to delay capital investment.

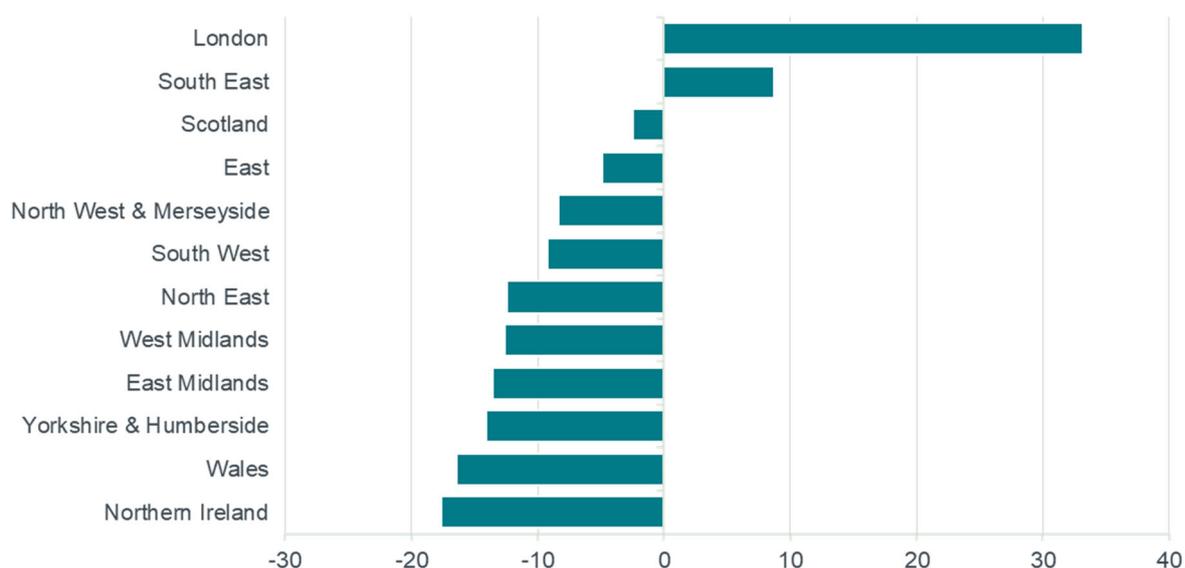
The PIN reviews consider specific factors in further detail. Each evidence review considers the current level of understanding surrounding one element of productivity and its drivers, aiming to capture gaps that may exist in the knowledge base. Examples of gaps highlighted by these reviews include, but are not limited to:

- The factors driving the gap in ICT take-up between firms
- The role of location on productivity, including clustering and agglomeration effects
- How local norms and entrepreneurial culture influence small businesses
- The role of non-cognitive skills (e.g. personality, adaptability, attitudes to risk)
- The link between transport infrastructure investment and productivity.

Moreover, as an area of research, **the regional dimensions of the UK's productivity challenge had received comparatively little focus across the ESRC's portfolio of productivity investments** (ESRC 2018b, 5). However, there are some signs that this was changing at baseline, with place-based research initiatives such as the PIN receiving almost £1.5m from the ESRC in 2018. Similarly, other ESRC initiatives, such as ProPEL Hub operated under a 'spoke and hub' model ensuring that regional member universities have more autonomy to make a local impact. Finally, the Centre for Cities think-tank has also been active in this area, producing a wealth of research around the regional aspect of the productivity debate.

However, the regional dimension of the UK’s productivity challenge has been understood for some time, but a systematic understanding of its different drivers and how they fit together across the UK’s regions was lacking (INT06; The Productivity Institute 2021, 9; Haldane 2018). It was well understood, for example, that London and its south-eastern hinterlands had an outsized share of medium- and high-productivity firms that is proportionate to the rest of the UK’s relative underperformance in terms of productivity (see Figure 18) (McCann 2018a, 15). One interviewee said that the discrepancies in productivity observed between regions is significantly higher than other advanced economies and that they were comparable to inequalities in productivity between western and eastern Europe (INT01). These underperforming regions were limiting the UK’s overall productivity growth rates, which detracts from London and the South East’s consistent over-performance in productivity growth, especially since the 1990s (McCann 2018b, 13; 15). The UK’s regional productivity challenge also intersected with sectoral imbalances between a frontier of highly productive firms concentrated in London and the South East, that exist in close proximity to a ‘long tail’ of low-productivity firms (Haldane 2017). In this regard, a key problem seems to be the UK’s historically low levels of technological diffusions across regions and sectors, which is almost without precedent among OECD countries (McCann 2018b, 13; 15; Haldane 2018). Similar to the nature of the UK productivity challenge at baseline, there was a firm understanding of the component parts of the UK regional productivity challenge (poor skills, infrastructure, lack of investment) but a *systematic* understanding of how these components fit together and their relative importance across the UK’s different regions was lacking (INT02; INT10; INT09).

Figure 18: Regional disparities in GVA per hour



Source: ONS

Generating and linking productivity-relevant data was a significant challenge at baseline. In particular, it was difficult to access high-quality administrative data and geocoded data (INT10; INT12). This was made more difficult by the fact that the UK does not, unlike many of its European peers, have a centralised system for data management (McCann 2018a, 14), which makes linking data particularly difficult (INT05).

A lack of standardised data has been a particular challenge as researchers often clean data slightly differently or make different assumptions around data quality and sources, leading to contradictory results and confusion (INT09). While the UK had taken steps to address this challenge, for example through initiatives such as the Bean Review of the UK's economic statistics (Bean 2016), when it comes to producing, accessing and linking data – especially firm-level data (INT05; The Productivity Institute 2021, 9) – the UK still had some progress to make relative to its international peers (INT03; INT10; INT12). The issue of accessing high-quality and reliable data intersects with the UK's regional disparities as evidenced by the fact that barriers related to data access and linkage are even more pronounced at the regional level (The Productivity Institute 2021, 9).

The issue of poor data availability is closely linked to the challenge of measuring productivity. For example, measuring the role of the intangible inputs and outputs, which can range from software to upskilling and learning and development for employees, that dominate a services-based economy like the UK is particularly difficult (INT06; INT03). The UK's difficulties in reliably measuring productivity has been especially detrimental to its ability to account for the role of digitalisation in driving productivity growth (McCann 2018a, 4). Nevertheless, even if work on the measurement of productivity is limited, as mentioned above, it should be noted that UK researchers such as Jonathan Haskel, Peter Goodridge and Gavin Wallis are among those working at this cutting-edge of the field (see Goodridge, Haskel & Wallis 2014).

In general, productivity research was orientated toward an academic audience and struggled to translate findings into practical policy solutions and interventions. When research organisations have collaborated with non-academic partners, these partners have tended to be sourced from national and international policymaking organisations, but not businesses (ESRC 2018b, 1). Indeed, only 8.5 per cent of relevant projects listed a private sector collaboration at baseline, many of which were for-profit research companies likely already engaged in the productivity debate (Gateway to Research 2023a). This limited collaboration with policymakers and businesses has resulted in a dissemination gap in connecting relevant stakeholders to high-quality research (The Productivity Institute 2019, 12). Part of the reason for this is that many researchers working on productivity were incentivised to produce academic publications in high-ranking journals, but not necessarily to spend time considering the policy implications of their work or translating their work into concrete proposals and recommendations (INT09; INT10). In our review of previous productivity investments, we found that even when outputs appear outside non-peer reviewed journals and in new media, such as blogs or YouTube, they are often inaccessible and pitched at audiences with economic expertise. PIN, for example, uploaded a series of webinars to [YouTube](#), but these were technical and presented research findings in a way that is unlikely to reach non-specialist policymakers and businesses. This often leads to a translational gap where otherwise excellent research fails to make the leap into practical applications among policymakers (INT02). Policymakers need clear, feasible recommendations that they can readily implement and academic researchers has not always provided this in their writing (INT05; ESRC 2018a, para. 6). There were of course exceptions to this, as some researchers were very policy-minded and produced research briefs, and research centres, such as the CEP, were perceived to have found a formula for effectively engaging with policymakers (Frontier Economics 2009, 26; 30). Across the wider productivity research landscape at baseline, only 23.7 per cent of relevant research projects produced a policy brief or report. Of those projects that did, the average was 3.38 policy briefs or reports (Gateway to Research 2023a).

5.3. Policy

This section provides an overview of the context at the baseline for the EQs related to policy. This context is relevant for the programme as a whole, but in particular for EQs concerning the impact of the programme on:

- How productivity is understood and integrated into practice by policymakers (PIEQ2)
- The capacity and capability of policymakers to engage with productivity research (PIEQ3).

The baseline context is particularly important for these outcomes compared to other outcomes that have by definition a ‘zero’ baseline – for example, the extent to which the programme has delivered actionable recommendations. The insights here are derived mainly from targeted stakeholder interviews and initial desk research. Some quantitative evidence is provided through analysis of evidence from GtR, looking at the engagement with policy for prior research projects.

Each of the subsections below summarises a key insight gained from the research to date, as well as more detail on the specific pieces of evidence that support this.

5.3.1. In the immediate period following the financial crisis productivity did not receive individual emphasis in UK government policymaking

For example, in the 2011 Budget Report and its accompanying Plan for Growth (HM Treasury & Department for Business, Innovation and Skills 2011), productivity policy was not an explicit focus. Interviewees remarked that immediately post-crisis policy officials were preoccupied with maintaining employment and implementing austerity measures and that productivity was put onto the ‘back burner’ (INT04, INT08). Another interviewee said that productivity was not seen as a central issue for many people, and if it was considered ‘this is often not explicit’ (INT01). However, from 2015 onwards, with the realisation that downturn in productivity growth post-crisis was not a temporary phenomenon (INT04), and the publication of HM Treasury’s Fixing the Foundations report where productivity was clearly referred to as ‘the challenge of our times’ and set out a 15 point for improving productivity (HM Treasury 2015), **productivity has increasingly been a policy priority for the UK government** and this focus continued into the 2017 Industrial Strategy and most recently in the 2021 Plan for Growth.

5.3.2. At baseline, policymakers and civil servants’ engagement with academic productivity research was mixed and policy implementation was limited

Summarising this trend, one interviewee said that ‘research was influential but in a really niche way’ (INT13). A select few academics’ works in quite limited areas, such as R&D tax credits, were influencing policy but it was not broader than this. Indeed, of all productivity research projects completed in the UK at baseline, just over 8 per cent listed at least one citation in a policy document (Gateway to Research 2023a). Of those projects that did report an impact, the average number of distinct citations was 4.75 (“GtR” 2022). Analysis of our baseline set of publications (publications between 2014 and 2018 by researchers subsequently involved in the PIP) finds that on average 14.9 per cent of baseline publications

were cited in policy documents.⁶ This is comparable to the average for ESRC publications over that period (12.6 per cent) but lower than a comparator set of productivity related-awards (26.4 per cent). We also see some differences between TPI and POID as shown in Table 10, with slightly higher engagement with policy at baseline by POID researchers, at least as far as this is indicated by citations in policy documents. This aligns with the focus of the two investments. For those publications that are cited in policy documents, the average number of citations received from those documents was 3.8. This is higher than both ESRC average for the period (2.9) and the comparator set of productivity-related awards (2.2).

Table 10: Percentage of baseline publications (2014–2018) cited by policy documents

Investment	Average field citation ratio	Percentage of highly cited articles (top 5% for their field)
POID	7.3	20.2
TPI	6.9	21.8
Whole PIP portfolio	7.0	20.9
Comparator grants	8.6	29.1
ESRC	6.0	20.5

Note: Baseline publications are a set of publications published by authors subsequently associated with the PIP.

Beyond the individuals engaged in the PIP, we see a similar picture in the broader research landscape. According to interviewees, engagement with productivity research was ‘ad hoc’, with only a select few individual civil servants and economic analysts within government taking an interest, rather than any systematic engagement (INT01). Relatedly, there were a limited number of formal and informal forums to facilitate engagement between researchers and policymakers (INT02; INT12; INT14). Some forums, such as the CEP or PIN, facilitated engagement between researchers and policymakers, and UK productivity researchers in general did hold engagement events with non-academic audiences, as 89 per cent of relevant projects listed had at least one engagement activity (such as a press release or a TV broadcast) that might impact policy (“GtR” 2022). However, these were not systematically organised. Across the case studies of previous investments considered, while ad hoc engagement was common, such as providing evidence at a select committee hearing in the case of PIN, or presentations to All-Party Parliamentary Groups in the case of LIPSIT, we have not identified any regular forums that systematically engaged policymakers and productivity researchers (INT12; INT14). In several other advanced economies at baseline, institutional links between academic research and policymaking were much closer. For example, several European member states have national productivity boards since 2016, while Australia has had a dedicated productivity advisory body, the Productivity Commission, since 1998. The latter is commissioned by government to produce policy-relevant productivity research and inquiries and it has a major policy impact; the government issues formal responses to its publications and in 2020–2021 alone, 121 members and

⁶ Analysis based on Dimensions data, which links publications to their citations in a set of indexed policy documents. See Annex H for more information.

senators referred to Productivity Commission reports in parliament (Australian government productivity commission 2021) At baseline, no comparable body in the UK has generated interest around productivity in either the House of Commons or the House of Lords.

A lack of engagement with research has been particularly acute at the regional level and the abolishment of the regional devolved authorities (RDAs) in 2012 was seen as only exacerbating the situation (INT10). These were non-departmental public bodies situated across England charged with regional economic development and were a ‘big help’ for research engagement at the regional policy level that have never been properly replaced (INT10). LEPs (business-led local partnerships between local authorities and the local private sector) were billed as the replacement, although they operate at a smaller scale with less funding (Jack Newman and Nigel Gilbert 2022) and questions remain around their suitability and expertise to engage with research. At baseline, LEPs had variable expertise and many lacked staff with the requisite expertise in economic modelling and monitoring and evaluation to engage with evidence (NAO 2016). Most recently, LEPs have been overlaid by MCAs and there is some promise that these could operate as a ‘good institutional form’ (“Project Outputs”). One interviewee broadly remarked that ‘many local regions don’t have [sufficient] expertise for policymaking’.

Others said that while academic work influenced the policy debate, it had relatively little bearing on actual policy implementation (INT09; INT10; INT11). Even when research was cited in policy documents, such as the 2021 Plan for Growth, or researchers may be invited to provide their expertise, such as PIN researchers providing evidence sessions to the House of Lords, material policy changes were limited. This was partly due to the nature of the academic research, but was also attributed by interviewees to a lack of political will (INT02, INT06). Simply put, policymakers in general viewed productivity from a ‘narrow perspective’ and had little appetite to implement broader policies around political economy and globalisation that would have a material impact on productivity (INT07). For potentially similar reasons, suggestions from the literature to focus on lifting the productivity of poorly performing firms (the ‘long tail’) rather than on firms at the ‘productivity frontier’ have not been well integrated into policy to date (INT07).

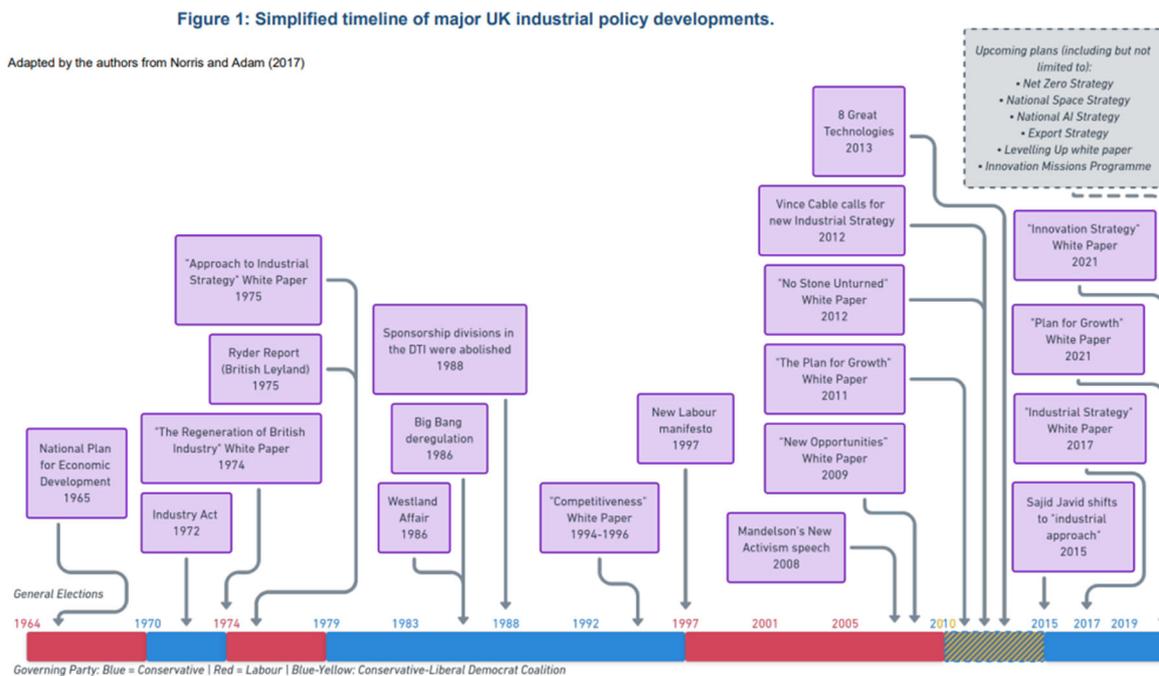
5.3.3. A lack of coordination between government departments has often been a significant challenge to implementing effective productivity policy

Productivity is a cross-departmental issue, but policy is often made in silos within departments. There is then a risk that productivity ‘falls between the cracks’ or that approaches are not coordinated, mirroring the fragmentation that is observed within the academic landscape. The Industrial Strategy Council, while active, had also identified this as a key issue. In a survey of civil servant leaders and representatives at baseline, this was seen as an issue to be overcome and a lack of organisational structures and cultural issues were seen as major barriers to collaboration (ORACLE 2020). The 2017 Industrial Strategy was seen as an opportunity to bring representatives together from across government and its abolishment has been seen as a ‘step back’ (INT15). Interviewees remarked that the UK was particularly poor in this respect by international comparison, with France being seen as having better models of collaboration (INT01; INT05).

5.3.4. Frequent changes in industrial and productivity policy have been commonplace and deleterious to long-term productivity growth

One key example of this is the overhaul of many aspects of the Industrial Strategy White Paper in 2021 in favour of the Plan for Growth. Coyle and Muhtar identify this not as exceptional, but ‘symptomatic [...] of British industrial policymaking’, while McCann et al. have similarly said that there ‘has been a constant churn in the policy and institutional landscape’ (Cook, Hardy, and Sprackling 2020; Coyle and Muhtar, n.d.). Changes tend not to be predicated on objective analysis or evaluation, but on narrow political considerations. Short-term political cycles have tended to guide decision making and longer-term structural reforms have been undermined. This so-called ‘churn’ is highlighted in Figure 19, which shows changes in industrial policy since 1964 and how they have closely followed the general election cycle. Interviewees pointed out that in other countries, such as Germany, a stronger ‘political consensus’ for effective industrial strategy has been achieved and has survived multiple election cycles.

Figure 19: UK industrial policy shifts over time

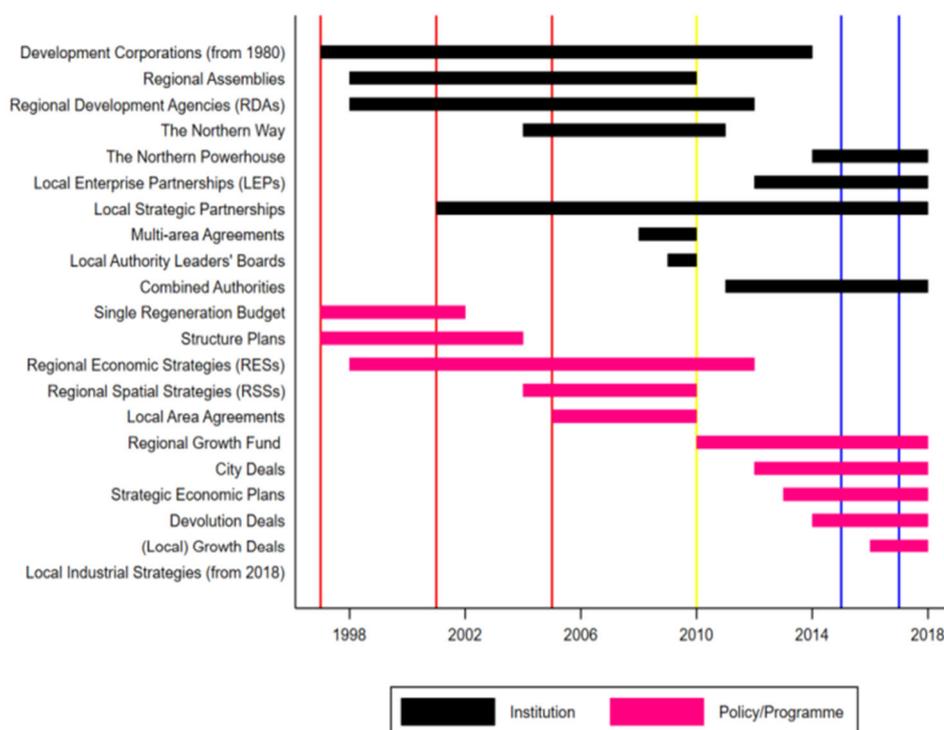


5.3.5. At the regional level too, there has been a similar churn in the policies and institutions designed to address regional disparities, including productivity

There has also been considerable churn in the policies and institutions designed to address regional disparities (including productivity disparities) and the emphasis placed on these within the policy narrative. In their review of productivity policy, SQW identify three key developments within this time period: the rise and fall of RDAs (discussed in Section 5.3.2 above), the creation of LEPs and the localism agenda. Figure 20 below summarises the key developments in the regional policy landscape since 1998, where one can see a range of different institutions and policies intended to improve regional productivity.

Figure 20: Regional development productivity over time

Figure 4: Key regional development institutions, policies and programmes from 1997 to 2018



Source: SQW

5.4. Business

This section provides an overview of the context at the baseline for the EQs related to businesses. This context is relevant for the programme as a whole, but in particular for EQs concerning the impact of the programme on:

- The capacity of businesses to engage with productivity research
- Business narrative and culture around productivity.

The baseline context is particularly important for these two outcomes compared to other outcomes that have by definition a ‘zero’ baseline – for example, whether the programme has identified interventions that businesses can make to improve productivity and whether those have been taken up. The insights here are derived mainly from targeted stakeholder interviews and initial desk research. More formal baselining will occur later in the evaluation.

Each of the subsections below summarises a key insight gained from the research to date, as well as more detail on the specific pieces of evidence that support this.

5.4.1. Individual businesses may think in terms of the bottom line rather than directly about productivity

A consistent insight arising from the baselining interviews was the idea that individual business leaders do not necessarily directly think in terms of productivity, but instead they think of the ‘bottom line’ - that is, profits and revenues. This theme was observed in multiple interviews (INT02; INT04; INT07; INT08; INT10). Similarly, another noted that businesses will think in terms of efficiency, cost and time, as opposed to productivity (INT02).

Several interviewees notes that business leaders would be able to define productivity at a high level, but:

- Business leaders may not necessarily have the capacity or incentive to measure productivity in their business (INT07; INT12). One interviewee in particular noted that businesses want to assess the impact of actions they take (for example, additional provision of training) but don’t necessarily try to assess impacts on their productivity (INT09).
- The measurement issue is particularly acute for service businesses, which find it harder, compared for example to manufacturing firms, to observe exactly how their inputs are used and how outputs are produced (INT06).
- Some businesses may not fully understand how higher or lower productivity is related to those ‘bottom line’ measures they are most interested in (profits and revenues) (INT10).

In relation to this point, two interviewees suggested that there is a language barrier between businesses and economists when it comes to productivity (INT02; INT09). Our initial review of evidence has not identified a large literature on how businesses define, understand and measure productivity. The contributions we have identified are consistent with the insights described above. For example, research from the Enterprise Research Centre (ERC) including interviews with industry informants in six industries found that in most cases ‘this concept [of value added] was either unfamiliar or had little meaning in the context in which interviewees were operating’ and that ‘interviewees tended to equate the term “productivity” with measures of operating efficiency’. They concluded that this ‘suggests a marked disconnect between policy dialogue and business practice’, but they also argued that ‘this should not be interpreted as a lack of interest or commitment to improving efficiency’ (ERC 2019).

A survey and interviews conducted by the Chartered Institute of Management Accountants also indicate that their members measure and report their own productivity with a ‘broader spectrum of key performance indicators (KPIs) than the standard input and output related ones, which are applicable in manufacturing but may be ambiguous when applied to delivery of services’. The same report also noted that 93 per cent of members admitted that ‘they face challenges tracking productivity’ (CIMA 2021).

The insights from these interviews on the whole imply that the typical business is not necessarily thinking about productivity directly, or at the very least may be thinking about it in a different way to economists and policymakers.

5.4.2. Individual businesses do not often engage with policymakers or academics

Interviewees suggested that the individual businesses generally do not engage with productivity research or with policymakers on the topic of productivity. Looking specifically at collaboration, only 1.2 per cent of PIP baseline publications include an industry co-author, though of course co-publication is only one route through which industry stakeholders can engage in research. This is similar to ESRC average (1.0 per cent) and a comparator group of productivity-related awards (1.1 per cent) over that period.

One interviewee suggested that a typical business does not engage with policymakers (INT08). They also noted difficulty engaging with SMEs in particular on the topic of productivity (INT08). Another interviewee also emphasised constraints on SME time and resources as a barrier to engagement (INT10).

One interviewee described a general disconnect between practical function and economic theory, suggesting also that papers aren't necessarily written for business contexts but instead academics are writing papers for other academics (INT09). Consistent with this point, another interviewee suggested that there is a gap in what is interesting to academics and what is useful for businesses (INT10). In this context, it is interesting to note that no businesses were included as project or proposal partners within the ESRC's productivity portfolio (ESRC 2018b) and that there is limited focus in the portfolio on the area of 'Entrepreneurship, Small Firm Business Growth and Productivity' (ESRC 2018b). We found in our case studies of previous productivity investments that businesses have been less engaged than other stakeholders, with only the occasional business-specific event being held. One potential exception to this is ProPEL Hub, where the Chartered Institute of Personnel and Development (CIPD) were included as a project partner in the aim of developing evidence-based innovations that firms could use.

In relation to this, interviewees noted that business engagement with productivity research did not take place in regular, systematic, formal settings. Instead, engagement happened at an individual level within specific programmes, projects or initiatives that were delivered through academic institutions' business schools and universities (INT08). One interviewee suggested that it was relatively easy for researchers and policymakers to talk, but that the business voice was 'often neglected'. The same interviewee suggested that where businesses are included, these tend to be the same large businesses (INT10). In terms of the capacity of businesses and business leaders to influence the research and policy agenda, one interviewee noted that was mostly indirect influence through lobbying government departments (INT10).

One interviewee noted that although their organisation did not have trouble engaging with academia, this may be due to their own personal network and it was unclear the extent to which these groups publicised themselves to a wider stakeholder audience or what formal structures were in place for engagement (INT07). Another interviewee noted the fact that productivity has been receiving more policy recently, which may be one reason why there did not previously exist formal structures for businesses to engage (INT10).

In terms of specific formal structures or opportunities for businesses to engage, desk research and interviews did identify some cases of this taking place at baseline. For example, the CEP offers engagement with businesses in the form of partnerships, involvement in the development of research agendas, businesses offering confidential access to data or pro-bono expertise (Centre for Economic Performance 2021). One interviewee also noted the National Centre for University and Business Collaboration and Be The Business as examples of institutions related to business engagement (INT12). The PIN website also states that its

aim is to ‘to stimulate new interdisciplinary directions in productivity research and foster engagement with business, intermediaries and policymaking communities’ (INT12).

The insights from the qualitative research carried out to date therefore provide a picture of low levels of bilateral individual engagement between businesses and policymakers or academia, particularly SMEs.

5.4.3. Business representative bodies are engaged with the topic of productivity and with policy more generally, and the themes of their work appear to overlap with that of policymakers and academia

Business engagement with productivity research and productivity policy may take place through representative organisations. Therefore, we undertook a targeted review of the activities and publications of three large cross-industry national bodies: CBI, the Institute of Directors (IoD) and the FSB. This was not formal or systematic review, so the insights here may not be fully representative of the work of these bodies.

Our review found that the CBI do publish an extensive amount of material on productivity. Their activities in this space include data collection and provision, advice for businesses and members, and policy engagement. This policy engagement covers both formal responses to consultation and more ‘opinion piece’ style articles. Though we have not undertaken a systematic review of the CBI’s publications, our initial impression was that there is a lot of overlap in terms of themes in the work that the CBI is publishing on productivity drivers and what we see in the academic literature. Publications were available on factors including skills, management practices, infrastructure, scale-ups and regional factors. This gives the impression that although individual businesses are not necessarily thinking about productivity (based on the insights from the interviews), the CBI is very much engaged with the topic. This was echoed by one interviewee who noted that the CBI had a good level of understanding of the importance of innovation and that they make it somewhat easier for businesses to get involved in policy debates (INT12). Searches of the websites of the IoD and the FSB found both are engaged with policy generally, both undertaking campaigns on policy issues relevant to businesses. The extent of the material published on productivity specifically appeared to be less than that of the CBI. However as noted, this was not a systematic review of their work and may not be representative of their actual activities.

We also explored the extent to which trade unions engage with productivity research and productivity policy. Evidence from interviews is mixed on this point. Some interviewees were of the opinion that trade unions are actively engaged in debates around productivity, at least at a high level (INT6; INT09; INT10). One interviewee expressed the opinion that trade unions were well informed and engaged compared to businesspeople and civil servants (INT10). In contrast, one interviewee was of the opinion that although there were individuals within trade unions who were actively engaged with productivity, engagement for businesses mostly happened through business bodies and not through trade unions (INT08). This interviewee noted that concerns existed within trade unions surrounding employment impacts, which made them view the productivity issue with scepticism and suspicion. The idea that trade unions may be concerned about employment effects of productivity enhancing initiatives leading to automation was echoed by another interviewee, however they also noted that trade unions may recognise that automation can lead to jobs elsewhere.

Overall, the insights from the interviews alongside our desk review suggest that business representative bodies are engaged with policy at the baseline. This applies to both national cross-industry bodies and trade unions, though the evidence is more mixed for the latter.

5.5. Summary of the baseline picture

Table 11 provides a summary overview of the baseline picture relative to each of the impact EQs specified in Section 5. The baseline assessment is intended to cover the state of play of productivity research *before* the programme was established. Therefore, process EQs have not been included in this assessment as there were no processes to consider at baseline. We should note that we have provided a baseline of impact EQs only.

Table 11: Evaluation question baseline assessment

Impact evaluation question	Indicators	Baseline assessment
<p><i>RIEQ1. To what extent has the programme delivered a step change in the quality, international recognition and multidisciplinary of UK productivity research?</i></p>	<p>Key stakeholders' perception of PIP's research quality and degree of interdisciplinarity</p> <p>Visits and enquiries from international productivity programmes and researchers</p> <p>Number of citations of PIP research from outside the UK</p> <p>Number of different disciplinary backgrounds represented in PIP investments</p> <p>Number of projects with partners from multiple disciplines</p> <p>Number of highly cited productivity-relevant publications</p>	<p>At baseline, the field of productivity research in the UK has seen a steady expansion and is widely perceived as being of a high quality and international renown. This is reflected in citation performance over that period.</p> <p>Despite the international renown, steady expansion and high quality of the UK's productivity research output, there has been limited multi- and interdisciplinary collaboration in the field of productivity research, though we do see a range of disciplines engaged in baseline publications at a comparable level to the wider ESRC portfolio.</p>
<p><i>RIEQ2. Has the PIP advanced the evidence base relating to UK and regional productivity, particularly in relation to finding practical solutions to the UK's productivity challenge?</i></p>	<p>Number of working papers, journal articles and policy briefs published by the PIP and PIP-affiliated researchers</p> <p>Number of new datasets created by PIP-affiliated research</p> <p>Perceptions of key policy and business stakeholders of the relevance of PIP research and data</p> <p>Perceptions of academics of the degree to which our understanding of productivity challenges has improved as a result of data, research and evidence from the PIP</p> <p>Number of PIP research projects and pilot schemes funded through RPFs/Business Innovation Programme</p>	<p>At baseline, the nature of the UK's productivity challenge was well understood on the whole, even if the relative importance of its different drivers, and how they fit together, was underexplored.</p> <p>Generating and linking productivity-relevant data was a significant challenge at baseline, as was the measurement of productivity, particularly at the sub-national level.</p> <p>The regional dimensions of the UK's productivity challenge had received comparatively little focus across the ESRC's previous portfolio of investments.</p>

Impact evaluation question	Indicators	Baseline assessment
	<p>Number of RPF submissions of evidence to the Productivity Commission</p> <p>Number of commissioned reports, research briefs and recommendations for national and local government</p>	<p>While the regional dimension of the UK's productivity challenge had, overall, been well understood for some time, our understanding of the productivity challenge's different drivers, and how they fit together across the UK's regions, was limited.</p> <p>Previous ESRC investments such as the CEP and PIN, are perceived to have been effective in engaging policymakers with productivity research. They were less successful at engaging businesses.</p>
<p><i>RIEQ3. How are productivity-related interventions and innovations developed by the PIP perceived by and useful to policymakers, businesses, researchers and wider academic stakeholders, workers and worker representatives, considering, for example, their practicality, novelty, risk and suitability for development and/or investment?</i></p>	<p>Perceptions of key stakeholders in policy, academia, business and among worker representatives of productivity-related interventions and innovations developed by PIP</p> <p>Examples of PIP researchers acting as experts to government or providing evidence to select committees</p> <p>Number of meetings and events with policymakers</p> <p>Examples of innovations and pilot schemes developed through PIP and trialled with businesses</p> <p>Number of citations of PIP research outputs in government policy documents and reports</p> <p>Number of highly cited productivity-relevant publications in the top 5 per cent of their field</p>	<p>Previous ESRC investments such as the CEP and PIN are perceived to have been effective in engaging policymakers with productivity research. However, 14.9 per cent of baseline publications were cited in policy documents, comparable to ESRC averages. Of those projects that did report an impact, the average number of distinct citations was 3.8, higher than ESRC averages (2.2).</p> <p>Productivity researchers were less successful at engaging businesses (see also RIEQ2). Indeed, only 8.5 per cent of relevant projects listed a private sector collaboration at baseline, many of which were for-profit research companies likely already engaged in the productivity debate, and only 1.2 per cent of baseline publications included an industry collaborator.</p> <p>In the immediate period following the financial crisis, productivity research did not receive as much individual emphasis in policymaking.</p> <p>At baseline, policymakers' and civil servants' engagement with academic productivity research was mixed and adoption of policy recommendations was limited.</p> <p>In general, but particularly among SMEs, engagement with productivity debates and research is limited. Some of the reasons suggested for this include language barriers between economists and business representatives, and difficulty seeing how, in practice, debates over productivity relate back to their 'bottom line'.</p> <p>Evidence is mixed on the point on worker representatives organisations' view of</p>

Impact evaluation question	Indicators	Baseline assessment
		productivity debates. While some evidence speaks to their active engagement, it also highlights trade unions’ concern over the implications of productivity on employment.
<i>RIEQ4. To what extent has the PIP linked up effectively with wider research and innovation priorities and opportunities?</i>	<p>Perceptions of key stakeholders in academia and in other productivity research investments of how effectively the PIP has linked up with wider research and innovation priorities.</p> <p>Number of collaborations with other productivity investments and initiatives</p> <p>Number of cross-citations between PIP and other productivity research investments (e.g. PIN, Transforming Working Lives project, etc.)</p> <p>Number of partnerships with non-PIP participating universities</p> <p>Number of productivity fellowships granted to scholars from non-PIP participating universities</p>	The field of productivity research was characterised by a high degree of fragmentation at baseline. This fragmentation was apparent both across disciplines, but also within economics research. Indeed, due to this fragmentation, the intersection of productivity with other research agendas such as the environment or health was underexplored.
<i>RIEQ5. What has been the impact of the PIP on academic capacities and capabilities for productivity research?</i>	<p>Number of secondments, placements and internships funded</p> <p>Number of policy, business, early-career and international fellowships funded</p> <p>Number of highly cited productivity-relevant publications</p> <p>Perceptions of individuals receiving training/skills development from PIP of its impact on their capacity and capability for productivity research</p> <p>Perceptions of key academic stakeholders of PIP’s capability/capacity for producing high-quality research</p> <p>Key stakeholders’ perceptions of UK researchers’ capability to produce relevant research at different levels including firm, local, regional, national and international levels</p> <p>Amount of follow-on funding received for further productivity research</p>	<p>At baseline, the field of productivity research in the UK has been characterised by a limited ability to engage in multi- and interdisciplinary research (see also RIEQ1).</p> <p>Generating and linking productivity-relevant data was a significant challenge at baseline. As was the measurement of productivity (see REIQ2).</p>
<i>PIEQ1. To what extent has the programme delivered high-quality, relevant and actionable policy</i>	<p>Perceptions of key stakeholders on the quality and relevance of policy recommendations around productivity</p> <p>Number of citations of PIP-funded research in relevant policy documents (e.g.,</p>	In the broad productivity research space at baseline, there was some tendency for academics to write only for academics and policy recommendations were not always feasible.

Impact evaluation question	Indicators	Baseline assessment
<i>recommendations around productivity?</i>	budgets, spending reviews, growth strategies) Data on 'Influence on Policy'	However, some exceptions did exist, as policy-minded researchers would often produce academic work with accompanying policy briefs. 23.7 per cent of relevant research projects produced a policy brief or report. Of those projects, the average was 3.38 policy briefs or reports.
<i>PIEQ2. Has the PIP had an impact on how productivity is understood and integrated into practice by policymakers?</i>	Perceptions of key stakeholders (particularly policymakers) on how understanding of productivity has changed over time for policymakers Examples of change in understanding and discourse around productivity as a result of PIP	Policymakers have, on the whole, tended to view productivity policy concerns through specific lenses and often in silos (e.g. by departments).
<i>PIEQ3. To what extent and how has the PIP had an enduring impact on the capacity and capability of policymakers to engage with productivity research? And conversely, how has the PIP impacted researchers' capacity to produce policy-relevant research?</i>	Perceptions of key stakeholders of the PIP impact on the capacity and capability of policymakers to engage with productivity research Perceptions of key stakeholders of the PIP impact on the capacity of researchers to produce policy-relevant research	Engagement at baseline was ad hoc, with only a few interested civil servants reading research papers. No regular fora existed to facilitate engagement and influence was almost entirely dependent on personal relationships.
<i>PIEQ4. What impact has the programme had on policy across UK government departments, devolved nations and local regions, and the international policy community? How sustainable are these impacts?</i>	Perceptions of key stakeholders in UK government departments, devolved nations and local regions of the PIP impact on policy across the UK Examples of and numbers of different types of policy engagement Examples of policy changes or new policies influenced by PIP	At baseline, UK policymakers may occasionally cite policy research in key publications, but there were limited examples of significant policy changes inspired by research.
<i>BIEQ1. How has the PIP created new structures and opportunities</i>	Number of PIP researchers engaging directly with industry (including secondments)	Perception from key informant interviews that individual businesses do not often engage, at least at the level of individual businesses. Engagement with businesses

Impact evaluation question	Indicators	Baseline assessment
<p><i>for productivity researchers to engage with businesses and other industry stakeholders, and how enduring are these?</i></p>	<p>Number of businesses that have engaged directly with the PIP</p> <p>Number and profile of PIP events attended by business representatives</p> <p>Number and profile of formal/defined networks created through the PIP</p> <p>Social media engagement with PIP research outputs directly relevant to businesses</p> <p>Number and profile of formal/defined partnerships with external organisations (e.g. Be The Business)</p> <p>Number of PIP research outputs involving direct collaboration with business (e.g. data provision, consultation, RCT participation)</p> <p>For businesses who engage with the PIP, qualitative assessment of the quality, novelty and utility of the engagements</p> <p>For PIP researchers who engage with businesses, qualitative assessment of quality, novelty and utility of engagements</p>	<p>does happen, but mostly through individual projects or programmes.</p> <p>A limited desk review suggests that national industry bodies and trade unions are engaged with policy at a high level, though the evidence on trade union engagement is more mixed.</p>
<p><i>BIEQ2. Has the PIP identified new interventions that business leaders or industry bodies could take to improve productivity?</i></p>	<p>Number of pilot interventions involving businesses</p> <p>Number of research outputs involving recommendations for industry</p> <p>Perceived novelty/value add of recommendations among business community</p> <p>Examples of interventions implemented as a result of PIP</p>	<p>Evaluation of this question will focus largely on the specific work undertaken by the PIP. However, the baseline assessment detailed under BIEQ1 provides useful context here.</p>
<p><i>BIEQ3. Has the PIP had an impact on how productivity is understood by business leaders?</i></p>	<p>Reported increase/changes in business understanding of productivity reported by industry stakeholders</p> <p>Extent to which external organisations and partners (e.g. CBI, Be The Business, participants in RPFs) are informed by engagement with PIP</p> <p>Social media engagement and with PIP outputs, by business stakeholders (e.g. number of followers on key platforms and evidence of engagement such as sharing and responding to content)</p> <p>Perceptions of researchers and business leaders engaged by PIP regarding understanding of productivity</p>	<p>Our baseline assessment based on stakeholder interviews and desk research suggests that individual businesses do not think about productivity in the same way as economists or academics, and that a language barrier may exist between academics and business leaders. However, the baseline assessment on the level of engagement by businesses and business bodies detailed under BIEQ1 again provides useful context.</p>

Impact evaluation question	Indicators	Baseline assessment
<p><i>BIEQ4. To what extent has the PIP led to changes in business practices and decisions (e.g. investment in technology, workforce training, etc.), and what has the effect of these changes been on productivity?</i></p>	<p>Measured or reported changes in practices or investment decisions for businesses directly engaged with the programme or its outputs</p> <p>Measured or reported changes in productivity for businesses directly engaged with the programme or its outputs</p> <p>Industry stakeholder perceptions of the extent of wider diffusion of PIP insights</p> <p>Examples of changes in business practices and decisions and description of their effects</p>	<p>Evaluation of this question will focus largely on the specific work undertaken by the PIP.</p>
<p><i>BIEQ5. What impact has the programme had on business across the UK, including devolved nations and local regions?</i></p>	<p>Synthesis of indicators considered under all business indicators, with focus where possible on distributional profile (e.g. geographic reach, profile of businesses impacted and engaged)</p>	<p>See BIEQ1–BIEQ4 for relevant baseline information.</p>

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Annex A. Search terms

Table 12 shows the search terms used in Scopus and WoS.

Table 12: Scopus and WoS search terms

Database	Search term
Scopus	TITLE-ABS-KEY ("productivity" AND ("UK" OR "United Kingdom")) AND (LIMIT-TO (SUBJAREA, "SOC") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ARTS") OR LIMIT-TO (SUBJAREA, "ENER") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "MULT")) AND (LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2012) OR LIMIT-TO (PUBYEAR, 2011) OR LIMIT-TO (PUBYEAR, 2010) OR LIMIT-TO (PUBYEAR, 2009) OR LIMIT-TO (PUBYEAR, 2008) OR LIMIT-TO (PUBYEAR, 2007) OR LIMIT-TO (PUBYEAR, 2006) OR LIMIT-TO (PUBYEAR, 2005) OR LIMIT-TO (PUBYEAR, 2004) OR LIMIT-TO (PUBYEAR, 2003) OR LIMIT-TO (PUBYEAR, 2002) OR LIMIT-TO (PUBYEAR, 2001) OR LIMIT-TO (PUBYEAR, 2000) OR LIMIT-TO (PUBYEAR, 1999) OR LIMIT-TO (PUBYEAR, 1998) OR LIMIT-TO (PUBYEAR, 1997) OR EXCLUDE (PUBYEAR, 2022) OR EXCLUDE (PUBYEAR, 2021) OR EXCLUDE (PUBYEAR, 2020) OR EXCLUDE (PUBYEAR, 2019)) AND (LIMIT-TO (LANGUAGE, "English"))

<p>WoS</p>	<p>"productivity" (Topic) and English (Language) and "UK" (Topic) or "united kingdom" (Topic) and Public Environmental Occupational Health (Exclude – Web of Science Categories) and Medicine General Internal or Environmental Sciences or Surgery or Health Care Sciences Services or Education Educational Research or Law or Psychiatry or Infectious Diseases or Environmental Studies or Health Policy Services or Oncology or Immunology or Clinical Neurology or Nursing or Pediatrics or Pharmacology Pharmacy or Veterinary Sciences or Microbiology or Ophthalmology or Cardiac Cardiovascular Systems or Endocrinology Metabolism or Meteorology Atmospheric Sciences or Gastroenterology Hepatology or Dentistry Oral Surgery Medicine or Ecology or Rehabilitation or Hematology or Medicine Research Experimental or Food Science Technology or Urology Nephrology or Geosciences Multidisciplinary or Nutrition Dietetics or Engineering Civil or Criminology Penology or Orthopedics or Respiratory System or Psychology Clinical or Water Resources or Genetics Heredity or Peripheral Vascular Disease or Psychology Multidisciplinary or Green Sustainable Science Technology or Engineering Environmental or Critical Care Medicine or Neurosciences or Substance Abuse or Engineering Electrical Electronic or Gerontology or Rheumatology or Biotechnology Applied Microbiology or Transplantation or Hospitality Leisure Sport Tourism or Anesthesiology or Computer Science Interdisciplinary Applications or Psychology Applied or Primary Health Care or Otorhinolaryngology or Geriatrics Gerontology or Medical Informatics or Marine Freshwater Biology or Toxicology or Astronomy Astrophysics or Virology or Plant Sciences or Dermatology or Psychology or Radiology Nuclear Medicine Medical Imaging or Biodiversity Conservation or Social Work or Sport Sciences or Agriculture Dairy Animal Science or Demography or Allergy or Emergency Medicine or Psychology Social or Agronomy or Biochemistry Molecular Biology or Transportation or Social Sciences Biomedical or Psychology Developmental or Pathology or Family Studies or Ethics or Zoology or Linguistics or Computer Science Theory Methods or Religion or Reproductive Biology or Development Studies or Engineering Mechanical or Oceanography or Nuclear Science Technology or Medicine Legal or Women S Studies or Area Studies or Geochemistry Geophysics or Chemistry Analytical or Language Linguistics or Ethnic Studies or Agriculture Multidisciplinary or Parasitology or Biology or Remote Sensing or Engineering Chemical or Geography Physical or Entomology or Instruments Instrumentation or Forestry or Cell Biology or Medical Laboratory Technology or Optics or Paleontology or Psychology Educational or Physics Applied or Education Special or Fisheries or Geology or Cultural Studies or Horticulture or Limnology or Physiology or Engineering Aerospace or Audiology Speech Language Pathology or Soil Science or Medical Ethics or Engineering Manufacturing or Thermodynamics or Chemistry Applied or Evolutionary Biology or Ornithology or Imaging Science Photographic Technology or Computer Science Software Engineering or Literature or Archaeology or Chemistry Multidisciplinary or Film Radio Television or Architecture or Biochemical Research Methods or Engineering Geological or Integrative Complementary Medicine or Music or Engineering Biomedical or Art or Psychology Experimental or Physics Multidisciplinary or Engineering Ocean or Mining Mineral Processing or Tropical Medicine or Mechanics or Biophysics or Automation Control Systems or Anatomy Morphology or Mathematical Computational Biology</p>
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	or Metallurgy Metallurgical Engineering or Philosophy or Chemistry Physical or Mycology or Computer Science Cybernetics or Acoustics or Theater (Exclude – Web of Science Categories) and 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2003 or 2004 or 2002 or 2001 or 2000 or 1999 or 1998 or 1997 (Publication Years) and English (Languages)
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Source: RAND Europe analysis

Annex B. Case studies

We present four case studies below on comparator programmes.

Programme: Productivity Insights Network (PIN)	
Organisations involved	Led by the University of Sheffield, with co-investigators at Oxford Brookes University, Cambridge Econometrics, Cardiff University, Durham University, University of Sunderland, SQW, University of Cambridge, University of Glasgow, University of Leeds and University of Stirling (Productivity Insights Network 2023a).
Structure of programme	PIN is co-directed by Professors Phillip McCann and Tim Vorley, with co-investigators acting as work package (WP) leads and thematic leads. PIN also has a dedicated data director and is supported by a network manager and project officer. Finally, the programme has an international Advisory Committee to provide oversight and expertise to the core team and wider project ("People: Productivity Insights Network" n.d.).
Aims	<ol style="list-style-type: none"> 1) To change the tone of the productivity debate in theory and practice. 2) To rethink the productivity issues facing the UK and develop new insights through an interdisciplinary, place-based lens (Productivity Insights Network 2023a) .
Approach	<p>The work is thematically led, covering seven distinct themes:</p> <ol style="list-style-type: none"> 1. Education and Skills 2. Work and Employment 3. Investment 4. Health, Wellbeing and Demography 5. Innovation and Enterprise 6. Governance 7. Infrastructure (Productivity Insights Network 2023a). <p>Co-investigators completed gap analysis reports within each theme to understand the relevant knowledge gaps and requirements. This informed PIN's focus areas and calls for funding (Productivity Insights Network 2023b).</p>
Kinds of projects funded	PIN funded 47 research projects across the seven core themes, as well as other emergent themes such as the impact of the COVID-19 pandemic on productivity (Productivity Insights Network. 2023b). PIN had a combination of open calls for proposals (the majority route of funding), as well as responsive calls for funding, targeted grant projects and co-investigator-led projects. The majority of projects funded were clustered around the Midlands and each devolved nation had at least one funded project (Productivity Insights Network 2023c).
Non-research activities	PIN produced accessible resources, such as evidence reviews, suitable for lay audiences. They also held a wide range of engagement events, including stakeholder forums, good practice workshops, webinars, debates, regional roundtables and action learning sets. They also maintained an active YouTube Channel to showcase webinars as well as a monthly newsletter and blog.
Timeline	PIN was created in January 2018 and is concluding work in early 2022, with a final book reviewing PIN's work due in Spring 2022.
Funder	ESRC
Costs	£1,479,790 (Gateway to Research 2023e)

Impact on knowledge	Academic impact was a primary goal of the programme and it had some successes in this regard. PIN has led to a wide variety of academic publications and has also helped to develop the next generation of productivity researchers, holding events and providing seed funding for them to develop (Productivity Insights Network 2023e).
Impact on policy	Leveraging co-investigator’s considerable networks, PIN’s research reports have apparently informed a wide range of policy areas including regional inequalities, the UK 2070 Commission, the Affordable Housing Commission and the UKRI Strength in Places Fund (SIPF). According to GtR, PIN has led to 23 distinct policy influences, including providing evidence sessions to the House of Lords and being cited in the Levelling Up White Paper.
Impact on business	PIN has held several engagement and networking events with businesses across the UK, such as a Cardiff Business Breakfast and Nottingham Retail Conference. However, it is fair to say that this has not been a focus of PIN and business stakeholders have not been engaged with any real depth.

Programme: The Centre for Productivity and Efficiency (CPE)	
Organisations involved	The CPE is based at the Lancaster University’s Management School (LUMS) and is comprised of thirteen 13 academic core members. The wider university think-tank, the Work Foundation, is a key collaborator and CPE links with their two-week executive training course, the Management Development Programme (MDP) (Lancaster University 2023h; Lancaster University 2023a).
Structure of programme	The CPE is directed by Professor Martin Spring and is supported by a centre administrator. The centre’s work is organised around six key themes, as detailed below, in projects funded by diverse sources.
Aims	<ol style="list-style-type: none"> 1. To be at the forefront of understanding the productivity puzzle through multidisciplinary and international collaboration (Lancaster University 2023a). 2. To bring about a transformative impact on productivity policy and practice. 3. To become the go-to centre for high-quality impactful research and be globally recognised (Lancaster University 2023e).
Approach	<p>CPE conduct research on six main themes:</p> <ol style="list-style-type: none"> 1. Technology Adoption and Productivity 2. Industrial Policy 3. Management Practices, Capabilities and Talent 4. SME and Supply Chain Productivity 5. Efficiency 6. Innovation, Productivity and Growth (Lancaster University 2023f). <p>The CPE aims to achieve impact through multidisciplinary, bringing together insights from economics, management studies and accounting. The CPE also works with corporate and public sector partners and advises the government on a wide range of productivity related issues (Lancaster University 2023b).</p>
Kinds of projects funded	Rather than funding projects, the CPE is a recipient of diverse project funding, running projects in areas such as the role of the university system in promoting innovation and productivity in the UK (Lancaster University 2023g). According to Lancaster University’s research directory, CPE has produced 49 publications since 2017 (Lancaster University 2023d).
Non-research activities	In addition to completing research, the CPE has conducted wide range of events broadly organised around the six core themes (Lancaster University 2023b). These include webinars for business recovery after COVID-19, public lectures and training workshop for early career researchers. There have also been four press events, such as radio interviews and TV appearances (Lancaster University 2023b).
Timeline	Based on online documentation, it is unclear when CPE was officially launched.
Funder	The CPE has received funding via a diversity of routes, such as the Industrial Strategy Challenge Fund (ISCF), the ESRC, the British Academy, the European Commission and others (Lancaster University 2023a).
Costs	As the CPE receives funding through a myriad of sources, there is no single cost estimate available.
Impact on knowledge	The CPE has produced a range of interdisciplinary publications, activities and projects in the pursuit of understanding the UK’s productivity issues through internationally collaborative and multidisciplinary engagement (Lancaster University 2023a).

Evaluation of the Productivity Institute Programme

Impact on policy	According to the CPE, they have made a contribution to the development of industrial strategy and productivity policy in the UK (Lancaster University 2023c). One example provided was their supposed impact on the UK government’s 2017 Industrial Strategy White Paper (HM Government 2017). However, perhaps unsurprising given its size and focus, it has not led to any concrete policy changes. To facilitate the policy impact of its work, the CPE held a parliamentary event showcasing the work of its researchers to MPs and business leaders.
Impact on business	No significant impact on business can be attributed to the programme, although this might be forthcoming with ongoing business collaborations. The CPE has recently worked directly with businesses on research projects, such as the ISCF project on implementing Artificial Intelligence (AI) in the service sector (Lancaster University 2018).

Programme: Local Institutions, Productivity, Sustainability and Inclusivity Trade-offs (LIPSIT)	
Organisations involved	<p>Led by Professor Nigel Gilber the University of Surrey, LIPSIT collaborates widely with universities, think-tanks and research organisations. These include Cardiff University, the Centre for the Evaluation of Complexity Across the Nexus (CECAN), City Region Economic and Development Institute (City-REDI), DEMOS, University of Birmingham, Warwick University, Wales Centre for Public Policy and Warwick Business School.</p> <p>LIPSIT also partners with the Welsh Local Government Association, ILSA Consulting and the West Midlands Growth Company (LIPSIT 2023c).</p>
Structure of programme	<p>The programme is led by Professor Nigel Gilbert, with team of co-investigators across participating organisations. They are also supported by a team of researchers, research fellows, research assistants and project managers, along with a communications and impact team (LIPSIT 2023e).</p>
Aims	<p>LIPSIT aims to identify institutional and organisational arrangements at the regional level that tend to lead to the ‘good’ management of policy trade-offs associated with increasing productivity, and to make recommendations to policymakers based on this (“About” n.d.).</p> <p>LIPSIT aims to answer the following research questions:</p> <ol style="list-style-type: none"> 1. What kinds of relevant institutional and organisational arrangements exist across the UK regions? How do the regional economies compare? 2. What kinds of trade-offs do these organisations consider important and how do they manage them? 3. What trade-offs between productivity growth, inclusivity and sustainability are actually achieved? 4. Which regional institutional and organisational arrangements, now or in the past, have tended to produce ‘good’ management of these trade-offs? Are there better practices in mainland Europe? (LIPSIT 2023a)
Approach	<p>In order to achieve these aims, LIPSIT use a five-stage process, consisting of:</p> <ol style="list-style-type: none"> 1. Scoping – Capturing explanations to differentials in productivity, conducting interviews and holding two workshops for key stakeholders, in the pursuit of identifying eight regions for in-depth comparison. 2. Secondary data analysis – Profiling UK regions through measures of productivity, jobs, economic, social and environmental targets to examine the influence on productivity growth. They will also analyse local industrial and economic strategies (including performance targets). 3. Collecting and analysing quantitative and qualitative data – Quantitative analysis: Focusing on the impact of governance structures, mechanisms and practices to apply ‘treatment’ effects, while distinguishing correlation from causation. 4. Drawing together the findings of previous stages and engagement with stakeholders – Developing recommendations and communicating with wider stakeholders (LIPSIT 2023a).
Kinds of projects funded	<p>While LIPSIT do not directly fund projects, they have been the recipients of seven listed projects conducted since 2020, consisting of two reports, three articles, one case study and one policy briefing. Generally, these projects are centred around helping regional and local policymakers responsible for industrial strategy to make good trade-offs between productivity growth, inclusivity and sustainability. The LIPSIT ‘Delivering Levelling-Up’ report draws together a range of evidence over a two-year investigation to mobilise findings on regional institutions and regional economies in order to assess the potential for delivering ‘levelling up’ in the UK (LIPSIT 2023d).</p>

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Non-research activities	<p>LIPSIT conducts engagement activities aimed at policymakers in the form of working groups, panels, workshops and presentations, including ‘Achieving Levelling-up: The Structures and Processes Needed – Pane Event’ (2020) and ‘Building Future Resilience in the Region’ (2020) (Gateway to Research 2023b).</p> <p>In addition, LIPSIT produces a series of blogs published at ‘The Conversation’, for example ‘UK Regional Productivity Variations and What Might be Driving These’ and ‘Event Summary – Achieving Levelling-Up: The Structures and Processes Needed’ (LIPSIT 2023b).</p>
Timeline	Oct 2019–Sep 2021 (“GtR - Overview” n.d.)
Funder	ESRC (“GtR - Overview” n.d.)
Costs	£715,317 (“GtR - Overview” n.d.)
Impact on knowledge	<p>Perhaps the most notable publication has been their review of ‘levelling up’ published in 2021. The key findings of LIPSIT are apparently being used by academics across UK institutions to teach students about the complexities of local government in England.</p> <p>Academics from institutions such as UCL, University of Leicester and University of Sheffield have confirmed the use of LIPSIT materials in their teaching.</p>
Impact on policy	<p>Overall, 12 unique policy impacts associated with LIPSIT are listed on GtR. Within this, there are three main policy influencing schemes conducted by LIPSIT, which are:</p> <ol style="list-style-type: none"> 1. Acting as a special advisor to BEIS select committee. 2. Evidence to Department for International Trade select committee enquiry into inward investment. 3. Presentation on productivity and levelling up, All-Party Parliamentary Group enterprise (“GtR - Outcomes - Policy Influence” n.d.).
Impact on business	<p>As with other case studies, LIPSIT have not directly engaged with firms. They do have some indirect engagement with organisations’ skills sector representatives and leading employers through research publications (“GtR - Outcomes - Engagement Activities” n.d.).</p>

Programme: PrOPEL Hub (Productivity Outcomes of workplace Practice, Engagement & Learning)	
Organisations involved	The PrOPEL Hub is a partnership of eight universities from across the devolved nations, ⁷ and the CIPD (PrOPEL Hub n.d.). The presence of the CIPD ensures that any knowledge gained from the projects and the Hub are passed onto the relevant stakeholders in the HR profession (UKRI n.d.).
Structure of programme	The model adopted for the hub has been described as a ‘spoke and hub model’ (in contrast to a hub and spoke model), with five major research projects funded by the ESRC on management practice and employee engagement (MP-EE) at the core of the programme (UKRI n.d.). The Hub's Primary Investigators are based at the University of Strathclyde, one of the universities affiliated with the five research projects (UKRI n.d.). MP-EE research aims to determine how workplace practices influence workforce well-being and capacity for innovation (Innovating Works 2022). The Hub preferred this decentralised approach to one where an external coordinator unconnected to the projects was ‘impos[ed]’ from the ‘top-down’.
Aims	<ol style="list-style-type: none"> 1. To join all recently funded ESRC MP-EE projects together, connect these to other major ESRC investments, and have them engage with other world class scholarship on engagement and productivity. 2. Relatedly, the Hub also aims to maximise the synergies and impacts of all ESRC-funded work in the space of productivity outcomes of workplace practice, engagement and learning (“People: Productivity Insights Network” n.d.).
Approach	<p>The work of the Hub is centred around five key themes:</p> <ol style="list-style-type: none"> 1. Improving well-being 2. Boosting innovation 3. Supporting diversity 4. Engaging employees 5. Managing people (PrOPEL Hub 2022). <p>As mentioned, the Hub aims to bring together all five recently funded ESRC MP-EE projects, which cover issues related to impact, stakeholder engagement, workplace conflict and occupational health. Each of the five MP-EE projects link their beneficiaries and target audiences to the Hub to grow opportunities for networking and collaborative learning that will impact business practice (“About: The Productivity Insights Network” n.d.).</p> <p>Non-research activities (see below) aim to identify practical lessons from across all projects and engage with the business community to test potential solutions. The outcomes of these non-research activities and their practical impacts on business practice and performance are ‘fed back’ through other non-research activities (e.g. ‘learning from difference’ seminars).</p>
Non-research activities	<p>There are many non-research activities that the Hub undertakes, or plans to undertake in the near future:</p> <ul style="list-style-type: none"> • MP-EE International Research Seminars, which focus on any learning from the ESRC MP-EE projects and allow for engagement with internationally recognised researchers. • MP-EE Masterclasses, Knowledge into Practice events and Engagement Hacks, where PrOPEL Hub knowledge exchange (KE) staff share practical learning from the ESRC MP-EE projects with businesses and key stakeholders. • Online KE activity for establishing a peer-learning network. • Formative, process and summative evaluation activities to determine the impact of the Hub (Productivity Insights Network 2023a).
Timeline	The PrOPEL Hub was created in January 2020 and has received funding until January 2023 (“About: The Productivity Insights Network” n.d.).

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Funder	ESRC
Costs	£1,580,012 ("People: Productivity Insights Network" n.d.)
Impact on knowledge	The Hub aims to mobilise knowledge from the MP-EE programs but does not itself conduct research.
Impact on policy	The Hub intends to develop robust policy networks in order to ensure that any lessons learned through the MP-EE programs can be applied in all parts of the UK (Productivity Insights Network. 2023d). On GtR, three unique policy influences were listed.
Impact on business	<p>For PrOPEL Hub, business engagement is a more central focus than other case studies. To this end, the Hub developed over 35 blogs, 8 videos and 6 podcasts to convey practical guidance for businesses from the latest academic evidence in its first year (2020–2021)</p> <p>Engagement with business stakeholders included the 'Interactive Masterclass' series, where leading academics and innovative managers shared insights from research and 'on the ground' best practices (PrOPEL Hub 2022). Recent masterclass topics include: 'People, performance and well-being in manufacturing', 'Managing People for Innovation and Fair Work' and 'Taking a Strategic Approach to Management of Conflict'.</p> <p>However, as yet, there are no tangible impacts on individual businesses.</p>

⁷ University of Strathclyde, Aston University, The University of Sheffield, Ulster University, University of East Anglia, University of Nottingham, University of Glasgow and Cardiff University.

Annex C. Baseline interviews reference table and search terms

Table 13 shows the anonymised interviewee and the corresponding interview code, cited throughout the report. No names have been provided to protect confidentiality and ensure the integrity of research subjects' rights.

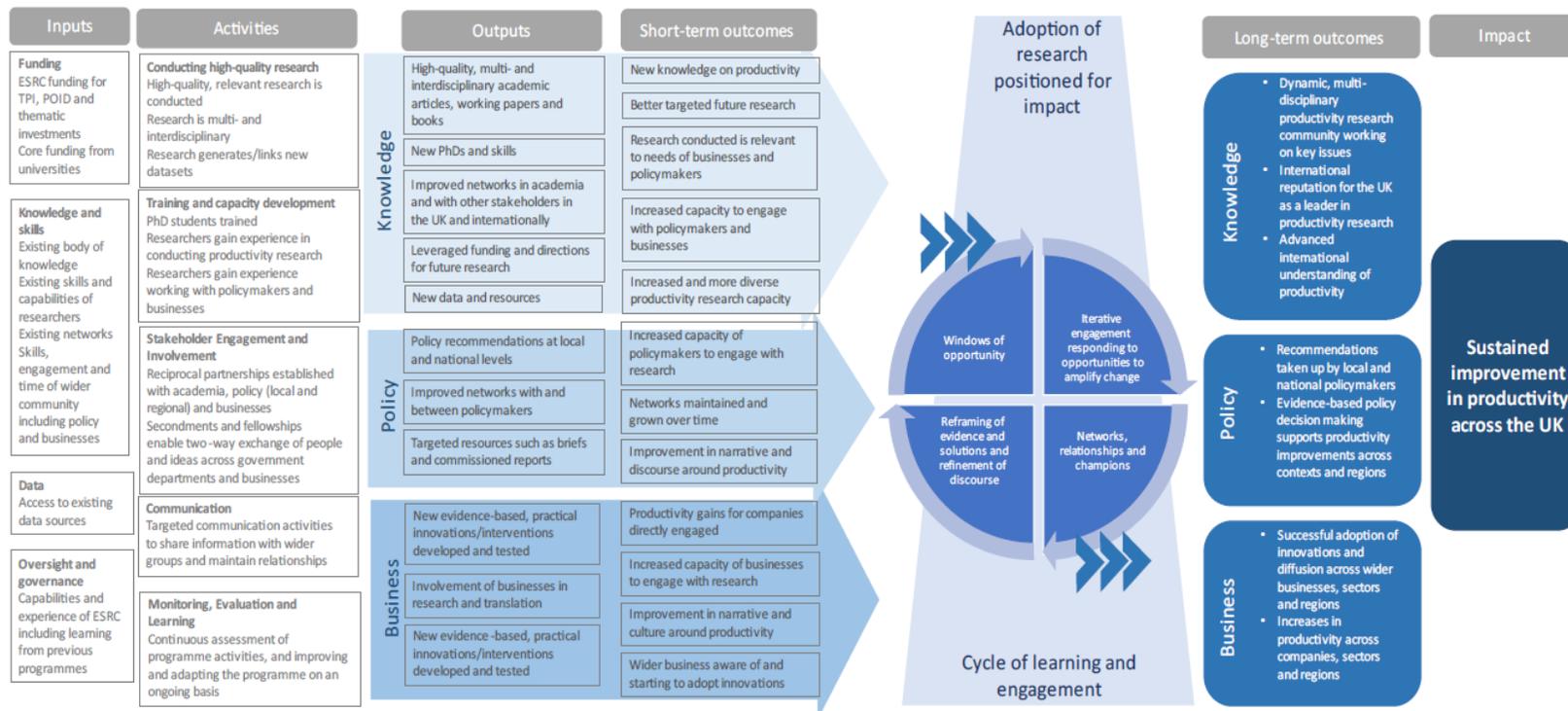
Table 13: Baseline interviews reference table

Interview code	Interviewee
INT01	Researcher
INT02	Researcher
INT03	Data researcher
INT04	Researcher
INT05	Researcher and policymaker
INT06	Policymaker
INT07	Researcher and policymaker
INT08	Researcher
INT09	Researcher and policymaker
INT10	Researcher
INT11	Researcher
INT12	Policy maker
INT13	Policy maker
INT14	Stakeholder representative
INT15	Key programme stakeholders

Source: RAND Europe

Annex D. Positioning for Impact ToC

Figure 21: Positioning for Impact ToC



Annex E. Baseline interview protocol

Opening

Thank you for agreeing to participate in this interview to inform the evaluation of the ESRC Productivity Institute Programme (PIP). The aim of this interview is to understand the state of play in productivity R&I at the beginning of, and prior to, the programme to act as a baseline for our evaluation. Questions will cover different aspects of the state of research, policy and business practices relating to productivity prior to the programme. Questions will also probe our understanding of the productivity challenge across the UK, its regions and internationally.

We expect that the interview will last between 45 and 60 minutes.

Do you have any questions before we begin?

Consent

This is an independent evaluation. As such, all interviews are confidential, anonymised and non-attributable. Your name will not be used in any of our reports.

Do you consent to be interviewed on this basis?

Permission to record

We would like to record the interview to facilitate notetaking and analysis. The recording would not be accessed by anyone beyond our team and would be deleted following analysis.

Do you consent to the interview being recorded?

Knowledge

1. **Could you briefly describe yourself, your work and how it relates to the UK's productivity challenge?**
2. **How has our understanding of the productivity challenge changed since 2008?** [*Probe: How would you characterise our current understanding of the UK's productivity challenge?*]
 - a. **What are our primary sources of evidence relating to productivity? [Probe: is this evidence base sufficient? What data/evidence do we need to improve our productivity-related evidence base?]**

- b. Across regions and devolved nations? *[Probe: In what ways is this similar to/different from the state of productivity policy at the national level?]*
 - c. How does this compare to the international scene more broadly?
- 11. Did policymakers have sufficient high-quality and *accessible* data and evidence to inform their understanding of, and response to, the UK's productivity challenge? *[Probe: Specifically, is this data of sufficiently comprehensive across the local regions and devolved nations of the UK? What are the key data gaps across the UK?]*
 - a. Across government departments?
 - b. Across regions and devolved nations? *[Probe: In what ways is this similar to/different from the state of productivity policy at the national level?]*
 - c. How does this compare to the international scene more broadly?
- 12. To what extent were policymakers equipped to engage with productivity research and the productivity research community? Were the right skills and capabilities in place?
- 13. Is the research community producing policy-relevant research? *[Probe: What are the barriers to producing more policy-relevant research? What effects the capacity of researchers to produce policy-relevant research?]*

Business

- 14. How would you characterise business leaders' understanding of productivity research prior to PIP?
- 15. Were there any major gaps in, or barriers to, their understanding of productivity? Could you provide examples? *[Probe: Feel free to reflect on this in terms of barriers or enablers of understanding. What institutions currently shape business leaders understanding of the productivity challenge in the UK?]*
- 16. Do business leaders have sufficient high-quality and accessible data and evidence to inform their understanding of, and response to, the productivity at the firm level? *[Probe: How does this data differ across the local regions and devolved nations of the UK? What additional data is required to enhance our understanding of firm-level productivity issues?]*
- 17. What structures were in place for productivity researcher to engage with/influence business and industry stakeholders prior to PIP? Could you provide examples? *[Probe: Were these structures different at the national level, as opposed the local level, or among the devolved nations?]*
- 18. Conversely, what structures were in place for business leaders and industry stakeholders to influence the productivity research and policy agenda prior to PIP? *[Probe: Were these structures different at the national level as opposed the local level, or among the devolved nations?]*

19. What structures, if any, were in place for researchers to engage with trade unions and, conversely, for trade unions to influence the productivity policy agenda?
20. What pro-productivity initiatives were in place, or discussed, among business leaders and industry bodies prior to PIP? Could you provide examples? *[Probe: Are these the same across the UK, or do they differ across the UK's regions and the devolved nations?]*

Closing questions

21. Is there anything you want to add which has not been covered by our questions?
22. Is there anyone else we should speak to?

Annex F. Gateway to Research methods

First, we identified relevant research projects related to (economic) productivity. This search was informed by our review of the baseline picture on ‘research’, where concepts such as ‘diffusion’, ‘innovation’ and ‘adoption’ were identified as particularly important drivers of productivity growth. We experimented with a range of search strings, looking to ensure that our search term was both sufficiently comprehensive and manageable for manual screening. The results of this are shown in Table 14.

Table 14: GtR search string

Search string	Search in	Restrictions	Hits
productivity OR diffusion OR efficiency OR adoption OR growth	Title, reference or abstract	ESRC only, 2009–2019 only	896
innovation	Title or reference only	ESRC only, 2009–2019 only	156
Productivity	Title or reference only	2009–2019 only	210

After manual screening of these search terms, we found 506 projects that were relevant to productivity (excluding, for example, projects related to biomass productivity or where economic productivity was not a primary goal of the study). After identifying these projects, using UKRI project IDs, we matched them to all outcomes and publications data from GtR. We analysed the following outcomes: engagement activities, collaboration (private), policy outcomes, as well as policy briefing/report data from ‘Publication’. This enabled us to understand the kinds of impacts emerging from the comparators and provide some quantitative picture of the baseline.

There are some caveats to consider. First, GtR data is self-reported so is dependent on researchers’ subjective views of the impact of their project. While social desirability bias may mean that estimates of impact may be inflated, underreporting and underestimates of outcomes is known to be an issue with GtR. Caution should therefore be exercised in the interpretation of GtR analysis.

Annex G. Further detail on potential econometric evaluation

Scope and objectives of the econometric analysis

An econometric analysis would involve linking the programme data with data on the characteristics of supported businesses and on their outcomes (e.g. revenues, employment, GVA) over time.

Data on business characteristics and on past outcomes would be useful to control, as best as possible, for differences between the ‘treated’ businesses (that are selected for or self-select into receiving support from the programme) and other potential ‘control’ businesses. Businesses that choose to engage with the programme may be those that are most interested in or willing to improve their productivity, or those who feel they have the most to gain from productivity improvements. This self-selection could introduce a bias (of uncertain direction) in estimates that compare treated businesses with others.

Therefore, it is essential to use approaches that attempt to control for selection into receiving support and, more broadly, that establish a credible counterfactual for the outcomes of supported firms. Ideally this could involve experimental or quasi-experimental approaches (e.g. regression discontinuity design, instrumental variables) but these approaches require randomisation of support, strict selection into the programme based on a score, or identifying a variable correlated with support but not with productivity. Our understanding is that none of these approaches are feasible or relevant to this evaluation.

An econometric approach would therefore need to use available data to control for observable, measured differences between treated and control businesses. However, it is possible that there would remain unobserved differences between the groups (such as a business’ willingness to grow or the education levels of its staff and management) and some self-selection bias may remain. For this reason, if econometric estimates are produced as part of this project, we expect to use them in combination with other sources of evidence as part of an overall CA of the impact of the programme.

This approach has been used frequently when evaluating the impact of public policies on business outcomes, and it is consistent with the evaluation framework for business support published by the Department for Business, Energy and Industrial Strategy, though it is less common in the evaluation of research funding.⁸ Recent examples in the UK include the evaluation of export promotion services (A. Rincon-Aznar and R. Riley 2015) and evaluation of innovation support (Frontier Economics 2017). The What Works Centre for Local Economic Growth’s review (WWLG 2015) of evidence on innovation support (grants and loans for R&D) has identified 42 studies that adopt comparable methods, assessed as a 3 or 4 out of 5 in terms

⁸ BEIS (2019).

of robustness on the Scientific Maryland Scale (with 5 reserved for experimental studies); an equivalent evidence review (WWLG 2015) on business advice programmes (focused on supporting individuals to set up their own business or supporting existing businesses to grow) has identified 19 studies assessed as a 3 on the SMS.

Identifying relevant data

Data on business characteristics and outcomes could be sourced from ONS datasets or privately held datasets. The table below describes the key advantages and disadvantages of possible datasets. In general, the analysis will require very large datasets to ensure that a sufficient number of treated businesses can be identified. This excludes survey data that provides information on large samples that are nonetheless small relative to the overall business population, such as the UK Innovation Survey or the Small Business Survey.

We expect the ONS Business Structure Database (BSD), an annual snapshot of the Inter-Departmental Business Register (IDBR), to be the most appropriate for this analysis, given its size (it covers all UK firms registered for VAT and/or PAYE). An alternative administrative dataset, a commercial source BvD Fame, is less useful in our view as it has relatively poor coverage of economic outcomes for small firms. The BSD would also be augmented with information on whether businesses have invested in R&D, from Business Expenditure on Research & Development (BERD) data, and whether they have received funding from UKRI through GtR data. A downside of the BSD is that it includes information on employment and turnover but not on GVA. It also lacks data required to construct detailed measures of firm-level multifactor productivity. As a result, whether the business' productivity has improved could only be inferred approximately based on a ratio of turnover to employment.

If the programme has primarily supported large businesses (employing 250+ people), the Annual Business Survey (ABS) would be preferable, as the ABS includes richer longitudinal information on the population of UK large businesses compared with the BSD. In particular, the ABS records the GVA produced by large businesses, a more reliable measure of economic output than turnover, and would allow GVA/employment ratios to be used as a preferable productivity proxy. Moreover, compared with the BSD, the ABS includes additional data on several variables from businesses' balance sheets, which could be useful control variables.

Table 15: Summary of datasets available for econometric analysis

Dataset	Businesses included	Variables included	Access
BSD	Nearly all UK businesses; longitudinal data can be constructed easily from annual waves	Business demographic information: location, industry, age, legal status, foreign ownership, among others; employment; revenues	ONS SRS
BvD Fame	Nearly all large UK businesses; very limited information available on SMEs; longitudinal data can be constructed but for smaller businesses data may not be available continuously	Business demographic information; for larger businesses, balance sheet data (e.g. total fixed assets); employment and revenues only available above minimum size thresholds	Commercial dataset – access for fee
ABS	Population of large businesses (250+ employees); rotating sample of SMEs	Business demographic information; employment, revenues, GVA, balance sheet information	ONS SRS

Timelines

The economic evaluation phase will start in April 2024. Upon kick-off, we will assess programme documents and management information and speak to programme staff to understand: 1) whether the programme has sought to engage businesses with the aim of directly influencing their productivity; 2) how many businesses the programme has engaged with and when; 3) what if any information has been collected that would allow the evaluation team to identify the supported businesses; and 4) whether sufficient time has elapsed since support was given to expect to see changes in outcome metrics of interest.

We expect to make a decision on whether econometric analysis will be appropriate by June 2024.

If econometric analysis is deemed appropriate, the following step would be applying for access to data through the ONS Secure Research Service (SRS). The BSD 2024 wave should be made available to researchers in the SRS in October 2024, which would contain information on key outcomes (employment and turnover) covering the period to 2023. Therefore we would apply in July, allowing up to three months for access to the data. We would expect the following timeline to complete the analysis:

- October 2024–January 2025: conduct analysis.
- February 2025: report interim findings.
- March 2025: finalise analysis.
- April 2025–March 2026: complete economic evaluation relying on results from econometric analysis along with findings from other approaches (described in Section 4.3).

Annex H. Scientometric analysis – proposed approach

Scope and objectives of the scientometric analysis

We will conduct a scientometric analysis to look at the academic outputs of the PIP and the influence they have had – both on the wider academic landscape and on other stakeholders, where feasible. This will cover a range of aspects, looking not just at the quality and volume of outputs, but their multi- and interdisciplinarity, and who is using them.

Given this focus, the unit of analysis for the scientometrics will be the investments within the PIP. We will primarily focus on providing an aggregate analysis for the programme as a whole, but can also provide investment level breakdowns where this is useful to illustrate the range and nature of the outputs and outcomes achieved.

The scientometric analysis will therefore primarily focus on the investments and the researchers involved with those investments.

Indicators to be covered by the scientometric analysis

Drawing on the evaluation framework, we identify the following indicators that will be addressed through the scientometric analysis:

- Number and nature (national/international) of external collaborations.
- Range of disciplines cited in publications from the PIP.
- Number of citations of PIP research from outside the UK and across fields of research.
- Field normalised citation numbers and proportion of highly cited publications resulting from the investments.
- Number of papers co-authored by researchers from different disciplines.
- Number and quality (based on citation measures, where possible) of working papers, journal articles and policy briefs published by the PIP and PIP-affiliated researchers.
- Number of citations of PIP research outputs in government policy documents and reports.
- Number of highly cited productivity-relevant publications from the PIP in the top 5 per cent of their field.

The majority of these indicators relate to the research impacts of the programme, however some also relate to policy impact and process evaluation aspects. Broadly, the indicators look at the quality and interdisciplinarity of the research produced by the programme and the way the research is used (based on citations) across disciplines and by policymakers.

Approach to the analysis

We propose to identify publications from the programme based on two main routes:

1. Lists of publications (including, where possible, DOIs) we know are associated with the programme from programme-level monitoring data, including monthly and quarterly reporting.
2. Publications that are identified in Dimensions as funded via one of the investments based on analysis of their funding acknowledgements.

These two methods together should give us a relatively comprehensive picture of the outputs from the investments.

Citation measures will be assessed in the usual way, relative to field and year of publication. We note the picture may be limited due to the timing of the evaluation – many of the publications will be recent and will have not had sufficient time to accrue citations enabling a robust analysis. Therefore, we may not be able to include more recent publications from the programme in the citation analysis.

Other analyses focus on the multi- and interdisciplinarity of the programme looking at the cited publications, citing publications and authorship of publications. In each case we will assess this based on journal subject categories (subject to confirmation with Digital Science). For citing and cited publications, we will look at the range of fields and the frequency with which they occur. We can also look at this on an individual publication basis – for example, what proportion of outputs are cited by (or cite) publications from five or more fields. For authorship, we will identify the ‘home’ field of each author based on the field in which they most frequently publish, and look at the range of ‘home’ disciplines identified across all publications as well as the proportion of publications that include authors from two or more different disciplines. We can also look at the average number of different disciplinary authors involved in each publication.

We will also look at the nature of collaboration beyond the programme, identifying external collaborators as individuals not affiliated with the institutions involved in the PIP based on author address information. We can then identify the proportion of publications that have wider UK collaborators, international collaborators and the proportion that are internal to the PIP. Similarly, we can also assess the proportion of citations of PIP publications that come from publications that have at least one author outside of the UK to give a measure of international citation.

Finally, using Dimensions’ linked dataset we will look at the proportion of PIP publications that are cited in policy documents. This is dependent on the extent to which the relevant documents are indexed within the Dimensions dataset (for example, coverage is more complete for national policy documents relative to regional or local policy documents) and, more importantly, on the extent to which policy documents cite

the sources they use. However, this provides a useful datapoint to complement evidence on use in policy from other sources.

Overall, this means we plan to compile a range of metrics related to the publications from the PIP as follows:

- Field normalised citation score for the PIP and each investment.
- Number and proportion of highly cited publication for the PIP and each investment.
- Number of citations of publications by field of research in publications from the PIP.
- Number of citations from publications by field of research to publications from the PIP.
- Number and proportion of PIP publications that cite publications from five or more fields.
- Number and proportion of PIP publications that are cited by publications from five or more fields.
- Number of individuals co-authoring publications from the PIP from each 'home' discipline by field of research.
- Proportion of publications from the PIP with authors from two or more different disciplines.
- Average number of different disciplinary authors involved in publications from the PIP and each investment.
- Proportion of publications that have wider UK collaborators, international collaborators and the proportion that are internal to the PIP.
- Proportion of citations of PIP publications that come from publications that have at least one author outside of the UK.
- Proportion of PIP publications that are cited in policy documents.

These metrics may be subject to finalisation and refinement in discussion with Digital Science and based on the ongoing needs of the programme and the evaluation.

Baseline assessment

All citation measures above will be normalised relative to world averages for the field and year of publication and as such are benchmarked against international standards. However, we also provide a further comparison point for the scientometric analysis by conducting a baseline assessment against each of the metrics specified above. This is particularly useful for measures of multi- and interdisciplinarity that do not otherwise have an easy comparison point. To do this, we have identified a set of key researchers involved in the PIP and conducted the same analysis above based on their publication output for the five years prior to the start of the programme. This then allows us to isolate the effect of the Programme itself from the ongoing performance and activity of the high calibre researchers it supports, though with some caveats – particularly, that their publication behaviours and quality would have remained consistent without their engagement in the programme. We have been provided with names and affiliations for the individuals associated with the programme and through desk research have identified a number of publications and associated DOIs for

each individual. We identified a total of 112 researchers associated with TPI and/or POID, and 95 of these individuals were able to be matched in the Dimensions dataset. We then identified for each individual their publication history for the years 2014–2018, providing a set of 1,457 baseline publications. Using this dataset, we have conducted the analysis outlined above to provide a comparison point for our ongoing scientometric analysis later in the evaluation. These findings have been included in this report to provide a picture of baseline scientometric performance and will be used for comparison in later analysis.

This is a more reliable and practical baseline measurement than trying to either baseline the overall performance of productivity research in the UK or to compare to prior investments for several reasons. Firstly, this approach allows us to be confident that we are looking at researchers who are working on productivity in the UK and are relevant to the field. Identifying the field of productivity research in the UK in a broader sense would be challenging to do robustly. In addition, since the programme is large in scale (the biggest investment made in UK productivity research) and involves a wide range of researchers across many institutions, it likely accounts for a large proportion of the researchers active in the field in the UK in any case, and thus can be considered to give a good overall picture of the UK productivity research landscape. Secondly, it allows us to be confident we are looking at the direct impacts of the programme; since these researchers are funded by the PIP, we can be reasonably confident that the programme has made a contribution to any changes in research activity or output observed. Finally, it is analytically tractable. In theory, it might be possible to compare scientometric performance to other UK investments in productivity research rather than to prior performance of engaged researchers. However, many of the same researchers are involved in both the PIP and other prior and ongoing investments from ESRC and others, which would make separating the relevant outputs and individuals challenging and potential analytically intractable. Baseline based on the researchers involved in the PIP and their prior work provides a clear and robust comparison point to allow us to look at the difference the programme has made to their research and hence to UK productivity research more widely.

Nonetheless, to further support and nuance the analysis, we have also provided analysis of bibliometric performance at baseline for two comparator groups. The first is all ESRC-funded research – more specifically, any publication linked to ESRC in Dimensions published between 2014 and 2018. These links are based on data from GtR plus extracted connections based on natural language processing of funding acknowledgement text and data from PubMed, Crossref and publishers. This ESRC comparator dataset consists of 20,919 publications. The second comparator group consists of a set of 506 awards from the UKRI research councils that relate to productivity research, selected in consultation with ESRC. Of these 506 awards, once duplicates were removed alongside awards with a 2019 or earlier start date, 341 awards could be included, which were found to be linked to 2,052 unique publications that were published between 2014 and 2018.

Annex I. Limitations of the baseline analysis

While the baseline analysis was informed by a wide-ranging set of data and evidence, and reviewed by several productivity and evaluation experts alike, it is also subject to a number of important limitations.

First, the baseline lacks a variety of secondary quantitative data to some extent as several data sources were either found to be insufficiently robust or simply not appropriate. For example, data sources potentially useful for understanding business engagement, such as the Higher Education Statistics Agency Business and Community Interaction (HESA-BCI), could not be used to inform the baseline. This data is disaggregated by individual higher educational institutions (HEIs), not academic disciplines, so while HESA-BCA may be able to provide a baseline assessment of business engagement with individual universities, it can say little about engagement with productivity research specifically. As such, it has not been included. GtR data has been included in this report, but, due to the patchiness and strong reporting biases inherent in this data source,⁹ it is for contextual purposes only. The bibliometric analysis overcomes these limitations to a large extent by providing a variety of robust, high-quality quantitative data on publications, interdisciplinarity, policy and business impact, and patterns of collaboration.

Second, given that much of the anticipated impact of the PIP will only emerge over a lengthy time horizon, the evaluation will not be able to capture its long-term impact in full. Ideally, the evaluation would involve a long-term follow-up and assessment of the programme to track its longer-term impacts. What we are proposing is a step in this direction, setting out a range of indicators that can be used to assess whether the programme is on track to achieve longer-term desired outcomes and impacts. Additionally, the evaluation has been designed in a way to ensure it is repeatable and that longer-term impacts could be captured in full at a later date using the same methods and framework.

Finally, attributing impacts directly to PIP can be a challenge given that it is occurring in a complex policy environment with its intended outcomes having several underlying causes. Simply put, PIP does not work in isolation, and if productivity in the UK does improve, it will not be a result of the programme alone. A combination of contribution analysis (CA) and an econometric analysis (if using) can overcome these difficulties to some extent. The quasi-experimental design (QED) approach can understand the causal impact the fund has made on fellows through comparison with unsuccessful applicants, while the theory based evaluation (TBE) approach is useful in understanding the broader macroeconomic impacts of the fund.

⁹ Many differences observed between investments' policy and business impact recorded on GtR are artefacts of variation in reporting rather than any real substantive difference between them.